Florida WILDLIFE

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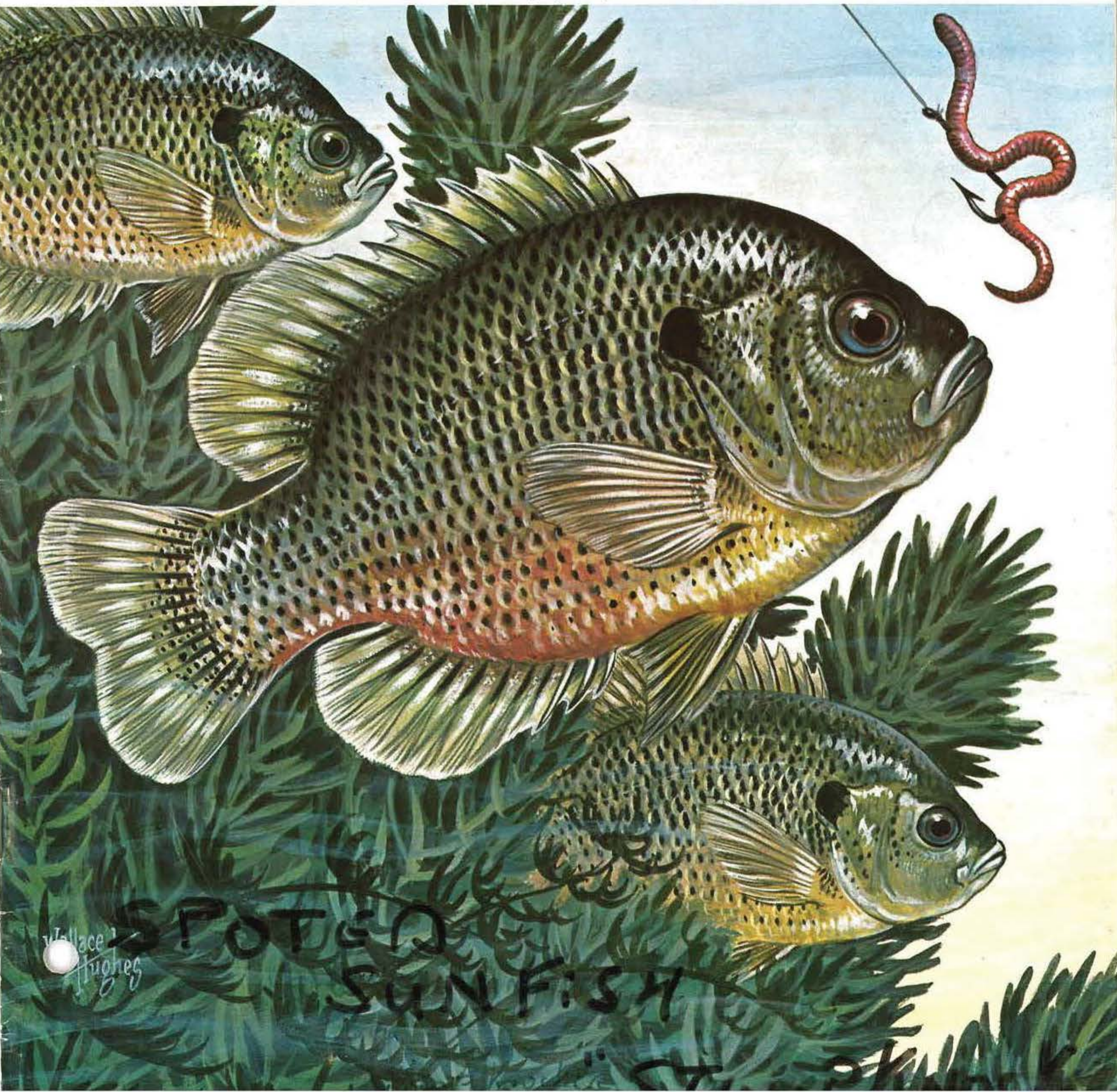
APRIL 1972

The Florida Magazine for all Sportsmen

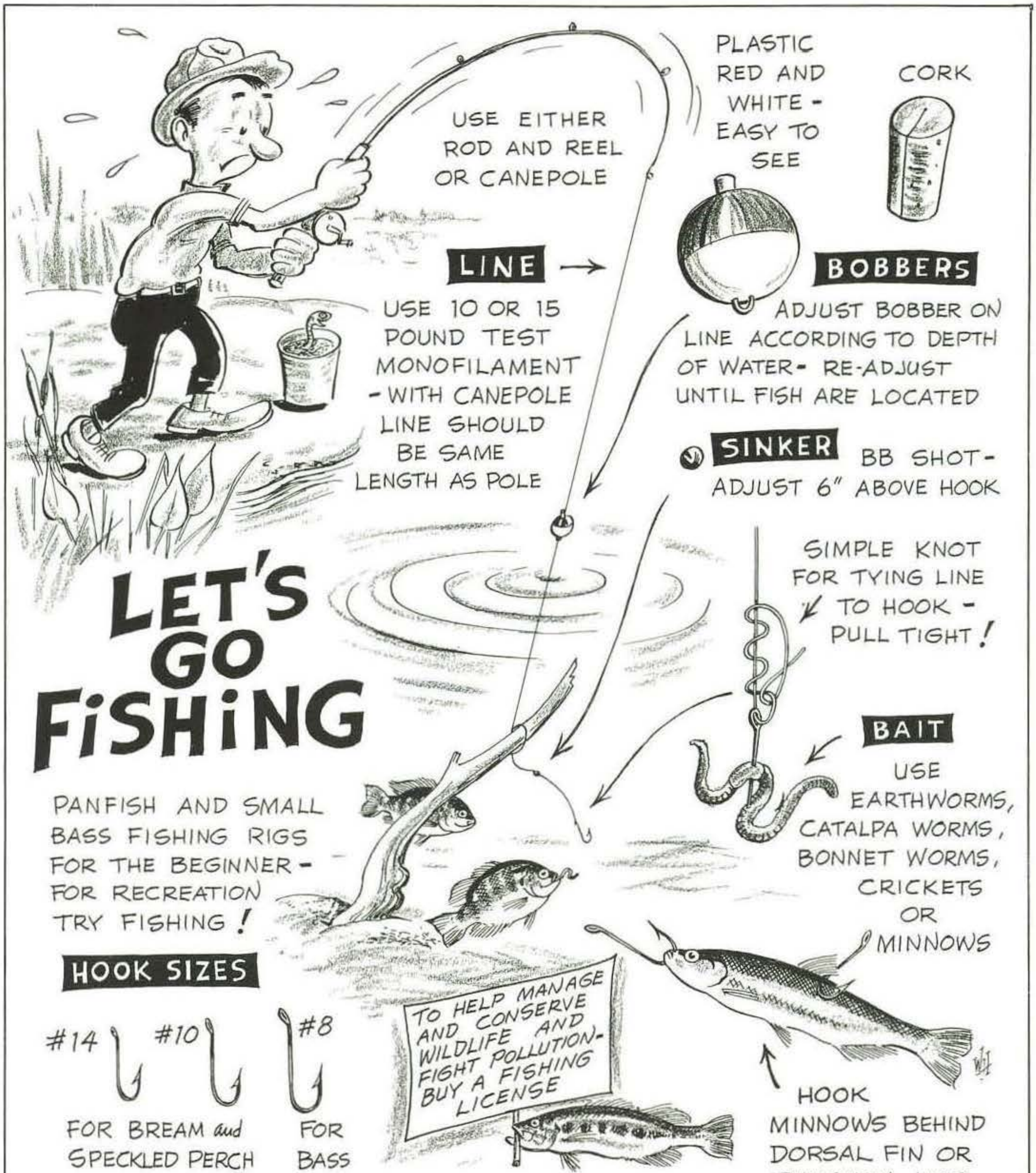
25 CENTS

Windy Weather Bass
Consider the Mayfly



SPOTED
SUNFISH

Florida Wildlife Scrapbook


USE EITHER ROD AND REEL OR CANEPOLE
PLASTIC RED AND WHITE - EASY TO SEE
CORK
LINE →
USE 10 OR 15 POUND TEST MONOFILAMENT - WITH CANEPOLE LINE SHOULD BE SAME LENGTH AS POLE
BOBBERS
ADJUST BOBBER ON LINE ACCORDING TO DEPTH OF WATER - RE-ADJUST UNTIL FISH ARE LOCATED
SINKER BB SHOT - ADJUST 6" ABOVE HOOK
SIMPLE KNOT FOR TYING LINE TO HOOK - PULL TIGHT!
LET'S GO FISHING
BAIT
USE EARTHWORMS, CATALPA WORMS, BONNET WORMS, CRICKETS OR MINNOWS
PANFISH AND SMALL BASS FISHING RIGS FOR THE BEGINNER - FOR RECREATION TRY FISHING!
HOOK SIZES
#14
#10
#8
FOR BREAM and SPECKLED PERCH
FOR BASS
TO HELP MANAGE AND CONSERVE WILDLIFE AND FIGHT POLLUTION - BUY A FISHING LICENSE
HOOK MINNOWS BEHIND DORSAL FIN OR THROUGH LIPS

FLORIDA WILDLIFE MAGAZINE • FLORIDA GAME AND FRESH WATER FISH COMMISSION

Florida WILDLIFE

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The Cover

Canepolers know him on sight; some of the "big fish" anglers might not. The Spotted Sunfish, or Stumpknocker, is a widely distributed bream species of small-to-medium size—but very tasty. See page 15.

From A Painting By Wallace Hughes

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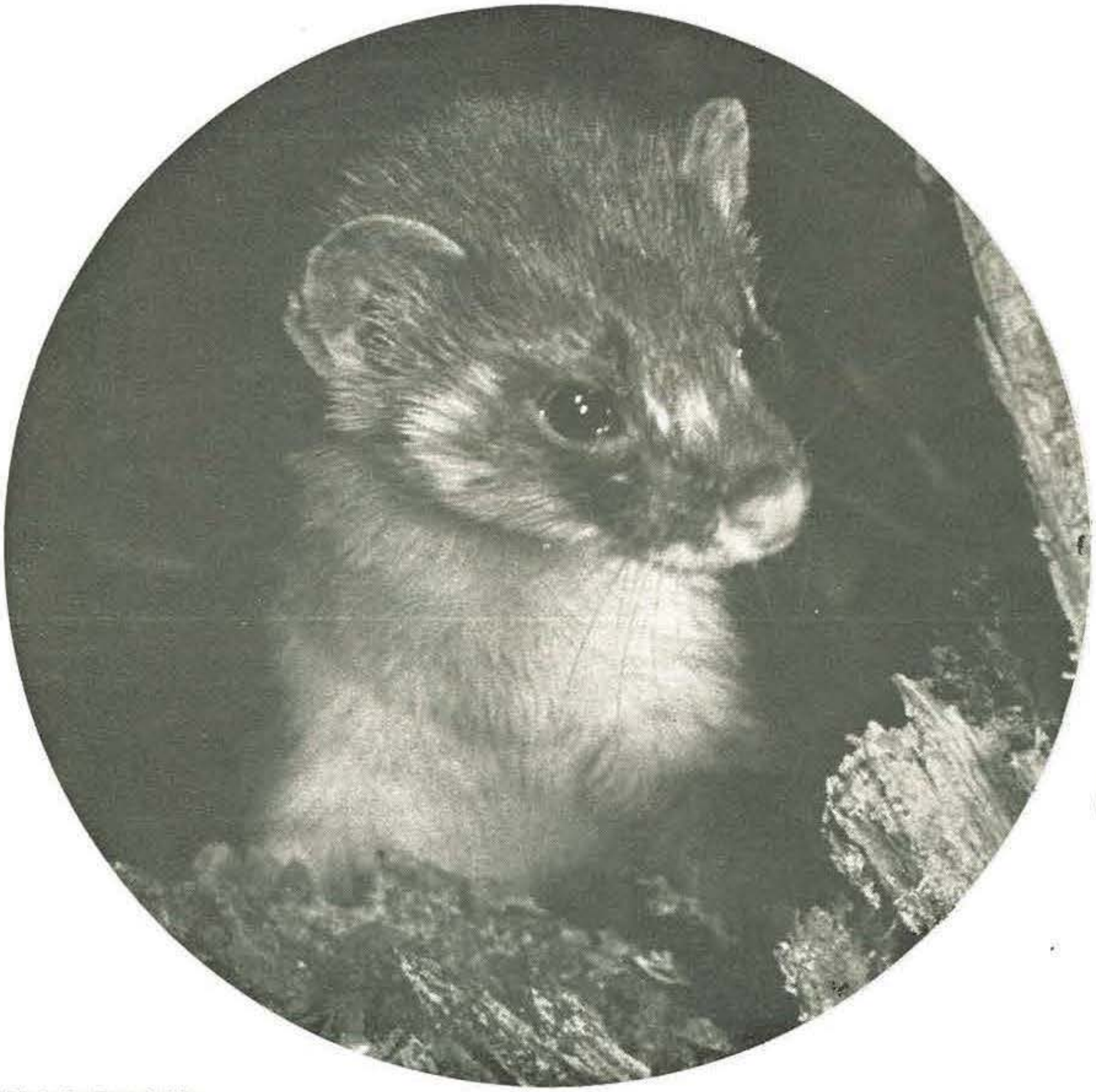


Photo By Gene Smith

Florida's RAREST Carnivore

BASED ON THE SELDOMNESS with which the Florida weasel has been seen or captured, it surely qualifies as one of the most elusive beasts living in the state. As far as is known, only about three or four dozen weasels have been taken in Florida during all the years since it was first settled by European man.

The Florida weasel (*Mustela frenata*), also known by the name long-tailed weasel, has the distinction of being the state's smallest carnivore, or meat-eating mammal. It is about the size of a field rat, but is slenderer and longer-bodied, with short legs and a well-furred tail which is about one-half the length of the head and body. Weasels have a small, flattened head, a pointed nose, and small rounded ears. The eyes are also small and have a beady appearance. A weasel's coat is dark brown on the upper parts and yellowish white on the under parts, with the chin being pure white. In some populations there is a small amount of white on the face, and similarly, the feet of some specimens are white whereas usually, only the toes are. The tail is uniformly brown except for the terminal one-fourth, which is always black.

The long-tailed weasel ranges in length from 13 to 17 inches in males and only 11 to 15 inches in females. The males weigh 6 to 9 ounces; females, only 3 to 5 ounces.

In the northern states, long-tailed weasels change their coat color in the winter to white. Only the tip of the tail remains black as all the brown hair is shed and replaced by new white fur. A weasel in the white phase is known as an ermine, but this condition is never seen in the southern United States. It naturally would be a great disadvantage for a weasel to turn white unless there was snow on the ground most of the winter.

The Florida weasel belongs to the carnivore family Mustelidae, which is based on the Latin word meaning weasel. Only one species of weasel occurs in Florida, but our striped skunks, spotted skunks, and river otters are all members of the Mustelid family.

Members of the weasel family occur on all the continents of the world except Australia and Antarctica. The largest member of the family is the famous and ferocious wolverine, and the smallest is called the least weasel, which is about the size of a mouse but slightly longer.

The apparent scarcity of the long-tailed weasel in all the Gulf states may be partly due to its secretive nature and tendency to be active mainly at night. However, since many experienced trappers have worked traplines for years without ever catching or seeing a single weasel, indications are strong that it is truly scarce as well as extremely wary of man.

Until recently, the weasel was thought to occur only in the northern two-thirds of Florida—because it had never been observed south of Lake Okeechobee. However, in December 1970, I picked up an adult male Florida weasel while driving on the Tamiami Trail (U.S. Highway 41) in Collier-Seminole State Park. It was lying dead in the highway where it had been run over by a passing automobile. This weasel's location extends the known range of the Florida weasel approximately 100 miles southwest of its former southern boundary. Therefore, weasels are now known to occur sparingly throughout both the *whole* peninsula and panhandle of Florida.

Two races, or subspecies, of the long-tailed weasel occur in Florida. *Mustela frenata peninsulae* occupies the southern two-thirds of the peninsula, and *M. f. Olivacea* occurs in the remainder of the state. The two races are virtually indistinguishable from one another by any but a trained observer.

Weasels in Florida do not seem to show any distinct preference for a particular type of vegetation or habitat. They have been taken, and their sign detected, in such varied habitats as sand pine scrub, cypress swamps, pine-palmetto flatwoods, tropical hammock, and occasionally even in urban locations.

They prey on all kinds of rats and mice, squirrels, pocket gophers, moles and shrews, and other small mammals, and, therefore, can turn up in any environment occupied by such animals. Rabbits are also taken by weasels, and in some instances their diet includes ground-nesting birds and small reptiles and amphibians. The weasel has limited value as a predator in helping to keep various ubiquitous rodents in check, but this is only because the weasels are in such short supply. Were they more plentiful, their potential value in this regard would be considerable.

Due to the scarcity of the Florida weasel, the Florida Game and Fresh Water Fish Commission lists it as a "fully-protected fur bearer." It is completely protected year-round—may not be hunted or trapped anywhere in Florida.

(*Continued on next page*)

By DR. LARRY N. BROWN

An alert, fearless bundle of energy, the weasel is usually on the move. It hunts mostly at night, taking various prey; climbs and swims well, but is primarily a land animal. The Florida weasel, shown here, is a fully-protected fur bearer.

Photo By Wallace Hughes

(Continued from preceding page)

Very little is known about the breeding season of the Florida weasel, but on two occasions nests of young weasels have been found in the month of November. In both instances there were three young present. In one of these cases a logger in the Okefenokee Swamp found a nest of half-grown weasels located in a hollow cypress tree. He kept the baby weasels and fed them milk for several days, then he gave them fresh meat. He reported they thrived and grew rapidly on the diet of meat.

This meager data would suggest that in Florida, litters are born and reared during the winter months, which certainly differs from the situation in more northerly locales. Weasels in the North always produce young in April or May.

Mating of weasels has been observed and is a rather violent affair. The smaller female strongly resists the male's advances, but with much growling and biting, copulation takes place. The animals remain locked in the mating act for two or three hours before separating.

The gestation period of weasels in northern states is known to be extremely long for so small a mammal. There, mating occurs in August or September and the young are not born until nine months later! Lactation in the females lasts five or six weeks, and the young weasels have attained their adult size and are well able to fend for themselves by the time they are two months old.

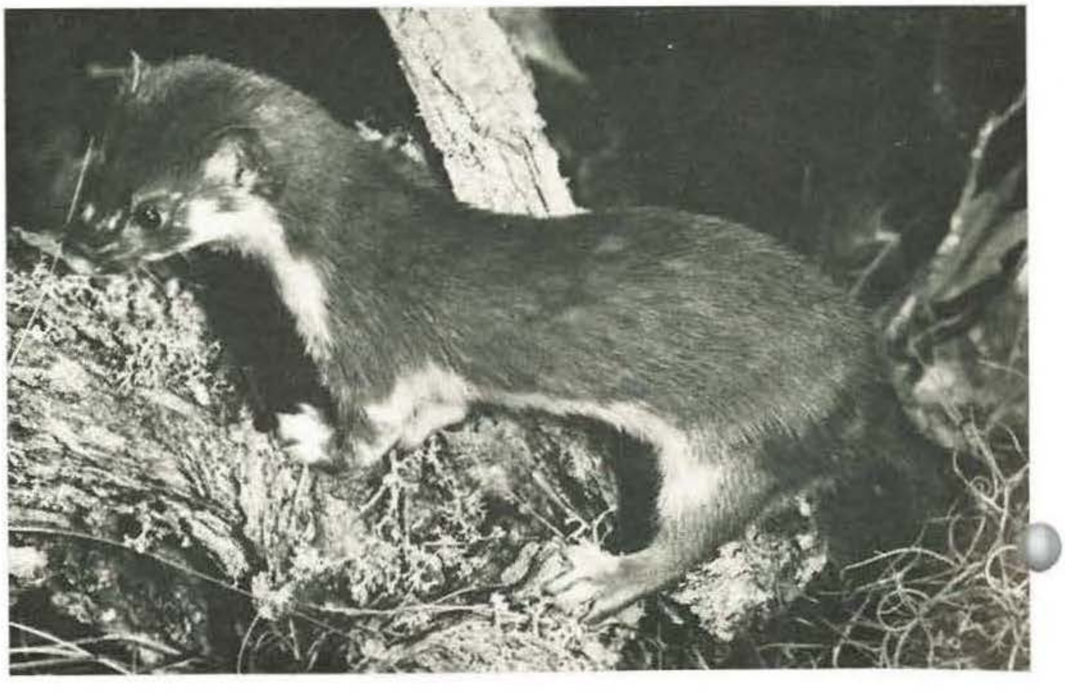
Considering their small body size, weasels have a deserved reputation for being ferocious. The mere sight of a rat or small bird usually elicits an attack response from a weasel regardless of whether or not it has just eaten. Weasels have been known to enter a chicken coop and kill every bird in sight without stopping to eat their fill. They seem compelled to kill by instinct, and when presented with an overabundance of prey, they may not stop until all are dispatched. However, poultry farmers in Florida generally need not fear so rare a beast as the weasel.

I can personally attest to the fact that weasels are remarkably spunky and will attack animals of any size, at least when cornered. I learned this from a weasel I once kept as a pet. It escaped through a small hole in the cage and got free in the cabin where I was staying. I slipped on some heavy leather work gloves and proceeded to chase the animal around the room, hoping to get close enough to grab it. I got down on hands and knees and pursued the weasel under a table in one corner, but it suddenly counterattacked—leaping in the general direction of my face, its fangs bared. I deflected it with my gloved hand and after recovering my composure, eventually recaptured the growling, snarling little beast. In the process I certainly gained great respect for the courage of this carnivore.

There is very little chance you will ever catch a glimpse of a weasel when you are out in the field hunting, fishing, or just enjoying nature in Florida. However, there is always a possibility that this rare form of wildlife will turn up at some unexpected time and place, even in city or surburban areas. And, as we mentioned, since they are most active at night, your best chance of seeing one is by flashlight.

Considering their temperament, I don't recommend that you tackle a weasel barehanded. You've probably heard it said of someone that "he's tough enough to go bear hunting with a switch." Well, I am convinced you would indeed have to be courageous to do likewise with a weasel. ●

Photo By William Greer



Weasels "pop" up in the oddest places. This one was caught in Monticello by Wildlife Officer Jim Parker. It thrives on raw chicken and beef; it also eats mice, beetles, & raw fish. The white facial markings are very common in Southern populations.

Outboards and Fish

outboards with the "homemade" above-water exhaust systems require some special care and handling—but will scare away less fish

By CHARLES WATERMAN

THERE'S A CRAZE for having property on the water, no matter whether it's an artificial lake in the Midwest, the ocean, or a Florida river. There is also a big thing called "getting away from town," and the weekend or vacation home is something of a status symbol, whether it's a 10-room lodge or a tarpaper shack.

The 10-room lodges can take over large areas of river bank and can double the amount of space required for living by a given family, but the tarpaper shack (or tin shack, or scrap lumber shack) can form an instant slum in what you thought was backwoods fishing or hunting country. It's often located on a fishing river, frequently on public land where its builders squat without charge. In almost every case the raw sewage goes into the river, and after a few months it looks like the ambitious beginning of a trash dump. When some people relax in the woods, they really relax, and their weekend cottages can be located from considerable distance if the wind is right.

Back home these squatters may be upstanding citizens with clean yards and polished cars. In the woods they live like feral hogs. I am not interested in why these outdoorsmen prefer goat roosts to clean camps but the time has come when an occasional shack on a river is no longer a rustic part of the view, for there are too many of them. Of course, if the place catches on fire or the builders tire of it they simply ride off in their boats and the thing sags there and rots, a part of the scene for a couple of generations. Anyway, when they abandon it, it quits smelling after a few months.

We have too many people now. The day of the squatter cabin and the rotting houseboat may be ending. Having become hemmed in by garbage at home, the town dweller likes to move away from it and start a new pile in the wilderness. Outstanding examples are found in the Everglades National Park area and along many Florida rivers. The time may come when there won't be room to start a new garbage pile unless we get rid of the old one.

A FEW MONTHS BACK I wrote an article for FLORIDA WILDLIFE about catching bluegills in the Lake Okeechobee canals while using a small green nymph tied by Al Klemack, a guide down at Sportsman's Village. For the benefit of those who don't fool with fly fishing, a nymph is an early stage of an insect that hatches out in the water, becomes a fly (generally a mayfly) and then lays its eggs back into the water to hatch into nymphs and go through the procedure again. Fly fishermen have reached the point where they use the term *nymph* for almost any underwater lure that looks like a small bug or worm. Some of the effective ones don't look like any special living nymph.

For many years I have been catching panfish and fresh water trout on various forms of nymphs or woolly worms. I figured they were an impressionistic thing, with color and design being unimportant as long as the size was about right. Since there are some living nymphs of green color, I guess I used a few green imitations, but it wasn't until recently that I became really hooked on the color.

Al Klemack's nymph is no come-lately design, for he used it in successful trout fishing up North before he began showing it to Florida panfish. It is simply green chenille wrapped around a slightly weighted hook with a little hackle (feather) and a little feather tail. The amount of lead wrapped around the No. 10 hook is important, and might vary your depth enough to make a slight change necessary in fishing different waters.

Bluegills are particular about depth, and one of the best ways of getting the thing to their level is to count as it sinks. When you find the right depth for the most strikes, you can simply duplicate that presentation by counting. We retrieve it slowly with little twitches. Not only was it highly successful on bluegills, but we racked up a lot of crappie (speckled perch) with it in January.

Maybe the little green thing is going to be as popular for underwater operations as yellow has proved on top. In one western stream where the trout were highly selective, I was taken aside and given a tiny nymph (size 18) that proved the most successful fly of all. It was green and almost an exact duplicate of Klemack's.

Very few Florida fishermen fish with sunken flies. If the fish aren't taking on top, they tend to go to spinning tackle. In most cases that will catch more fish, but there are exceptions.

THE PSYCHOLOGY OF surface lures can bear a little discussion. There are all sorts of ways of manipulating plugs or bugs on top, some of them es-

(*Continued on next page*)

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pecially productive in certain circumstances and useless in others. Although none of us is sure just how a bass looks at the situation, I have a pretty good idea after watching some of them in clear water.

Without any advance information, I work a surface bait like this for bass:

Very shortly after it alights on the surface, I move it very slightly, then let it lie quiet for several seconds. Then I twitch it enough to cause a disturbance visible for some distance, let it lie for a while and twitch it again. After repeating this a time or two without result, I pop it loudly several times if it's a popper. If it's a swimmer or stick type, with or without spinners, I yank it hard and reel it in erratically. I don't retrieve fly rod lures very far.

If one of these moves gets strikes, I change the whole procedure so that I'm using that system all of the time. Nobody is going to give me a Ph.D. for my procedures, but there is some reason for them. In the first place, the splash made by a bait in the water is likely to startle a fish briefly, and if the initial splash is followed by a lot of other racket he might leave for good. On the other hand, I want there to be a trace of movement shortly after the landing so that he'll think the thing is alive rather than debris blown in from a nearby tree. I don't think a gentle twitch or a little vibration imparted by the rod is going to drive him off, although there are many good fishermen who say the lure should remain motionless for a long while.

Now if the fish doesn't take the thing while it's lying nearly still, I give it some added action, although not too violent or fast. Then, if the modest ruckus doesn't get business I really yank on the lure, for there's always the possibility he wants lots of splash and plenty of speed. But these things are given to him after he's declined more gentle action, for too much manipulation can scare him off. The theory is that after the cast has been pretty well worked out, it's time to make him either come or go.

Whatever else you do, don't start your manipulation with the most violent jerks unless the fish have already shown that's what they want. There's always time for the falling-horse splashes after everything else has been tried.

The typical reaction of a bass is to be slightly startled when a lure first strikes the water and many a fish that starts to move off a little will turn, come back, and rap it. Long pauses give him time to move under it, then little twitches may make him grab it. I now believe the bass that occasionally puts his snout almost against a plug and lies there watching it is trying to see what it smells like. Sometimes he strikes when it moves a little, evidently feeling it is about to escape.

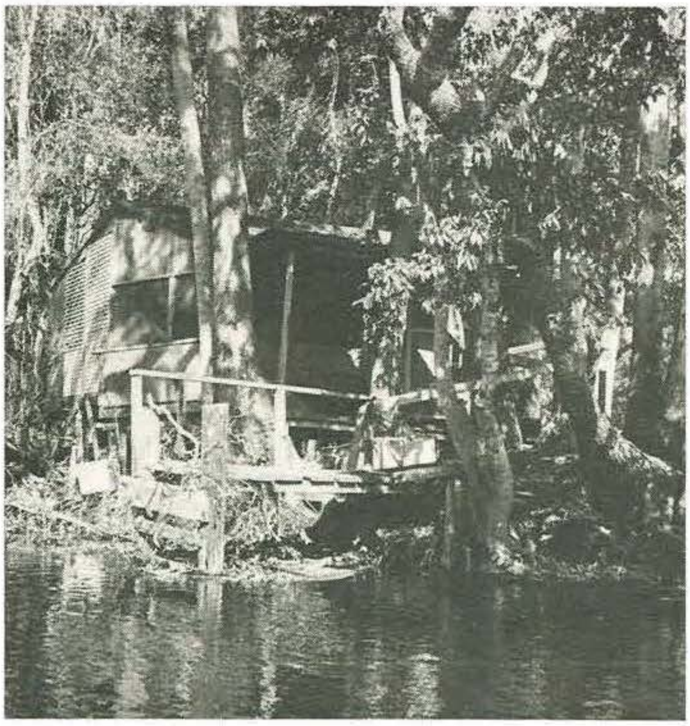
Although most surface lures for bass are worked too fast, I won't go for the adage that it's impossible to fish them too slowly. Remember that the slower you work your lures, the less water you cover, and even if you pass up a few that haven't made up their minds, remember that you may be showing your casts to a lot of fish that are likely to come quickly.

It's difficult to put a set time on the manipulation of a lure. When fishing a popping bug for bass and using a fly rod, I am likely to fish each cast for some 30 seconds, perhaps considerably more if I'm wading and much less when a boat is drifting too fast along a shore or weed line. Plugs cast from spinning or bait casting outfits can be worked for a much longer distance than a flyrod lure since they are to be reeled clear in to the rod and don't need to be picked up out there near where the cast landed to save a lot of false casting with the fly rod. For that reason, the plug caster can make a single cast last almost indefinitely if he's fishing over a grass or weed bed. If he's working a shoreline he probably won't want his cast to be fished out thoroughly, but will reel in fast to get off another one.

* * *

IN RECENT YEARS I have had a lot of correspondence about motors that scare fish, motors that don't scare fish, and motors that could be talked

The fairly shallow, grassy lake edges are ideal for fishing with surface lures. Make pops and gurgles with a purpose to fool more bass, and pause some—the fish need time to think.



River shacks found in Florida are questionable from the beauty angle. Also, some are sources of pollution. Even the worst of them is somebody's status symbol, however.

out of scaring fish. To the disgust of some outboard dealers, I have pointed out that the underwater exhaust is one of the chief causes of scared fish and that an outboard motor altered to exhaust above the water can be driven over fish that would take off violently from the normal underwater exhaust. I have quoted fishermen who trolled successfully with topside exhausts and failed miserably with the other kind.

Some years back there were a lot of tarpon fishermen at Crystal River who had outboard motors altered to exhaust above the water, some of them using washing machine mufflers and all sorts of gimmicks to keep the exhaust quiet. Some of them just let her crackle.

A while back, a friend of mine stirred up some above-water exhausts for six-horse Evinrude and Johnson motors and I wheedled him into making one for me. He used a rather bulky fiber glass water jacket as a muffler and the rig worked like a charm as we proved repeatedly when we'd tool around over sleeping tarpon with our above-water exhaust and then scare them silly by starting a motor with conventional exhaust.

Since I spouted off in print about these things, I had some requests for above-water exhausts and my friend was in no mood for making any more. Since such a rig requires a little special care, outboard manufacturers don't want to encourage such alterations, and I don't blame them. There's a little added delicacy about handling such a motor since there may be a little extra backpressure, and most of them (there are several ways of doing it) will give trouble if the foot is tilted too high.

I suppose many sharp mechanics can do it, but I can give you the name and address of one who has made a highly successful conversion. That's Don Pieper, Hontoon Marina, River Ridge Road, DeLand, Florida 32720. He isn't exactly chasing the business, but he says he can make the topside exhaust for around $50. For example, it could be done handily on the Evinrude and Johnson 5½ and 6-horse engines, the old model 10-horse of Evinrude and Johnson, and the 18. Pieper says he could undoubtedly work out something on other motors without too much difficulty, but would have to study the engine.

It still isn't simple. You'd have to get your motor to Hontoon Marina and get it back again. You might have a local man who wants to undertake the conversion.

So why is it better than the wonderfully quiet electric motors that all of the bass boats are following? It isn't if you use a fairly small boat and don't have to buck too much wind or current. Where you're using a big boat on big water, the electrics just won't do the maneuvering. Most of the people who use the topside exhaust have it on a spare motor that is used for getting home in case of a breakdown, many of them operating offshore or a long way from a dock.

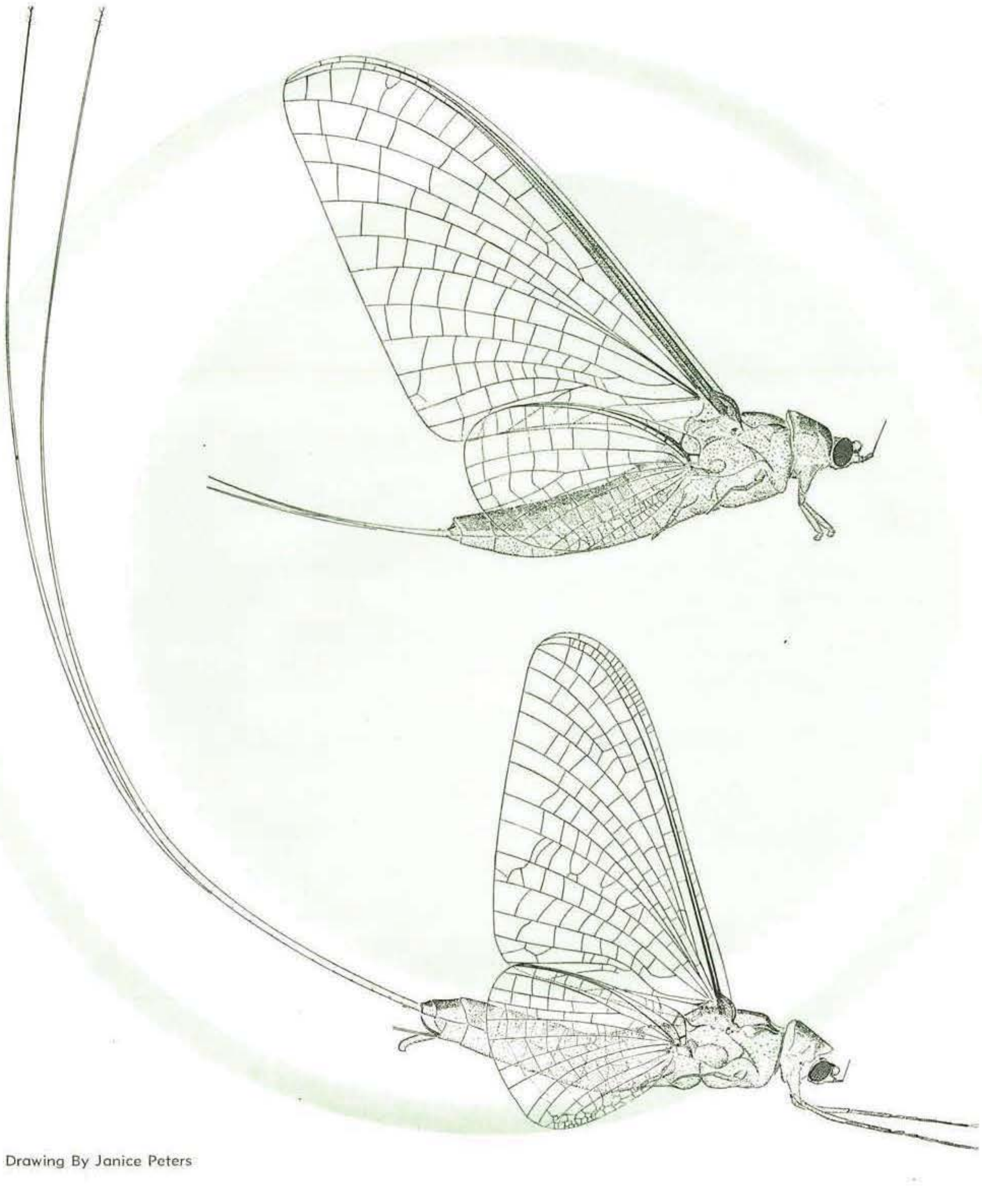
AND IN THE motor department again:

Some years ago I found that I was wearing out my brass propellers too fast. Even after I'd substituted brass or bronze for the aluminum that came with the motors, I'd whittle them apart on oyster bars and in sand until the propeller outlay was out of sight. So I had some extra-heavy props made with thick blades. They were very little slower on fishing boats, even though the edge of the blade was quite wide.

They're so heavy they aren't recommended by people who know a lot more about boats than I do, but after several years of use I have not torn up any engines and the propeller costs have gone down to practically nothing. If I give them any special care, it's simply in being sure the engine is idling very slowly when I shift gears. It's another special thing for special people, and I hesitate to recommend it to anyone else—but it works for me.

TALKED WITH A world-traveled fisherman a while back and we discussed where there's true virgin fishing waters. He thinks your best bet if you want to fish truly new country is Central America; possibly South America. In those places there has been little fishing except where resorts have been developed and there are plenty of new frontiers—possibly for fish with unpronounceable names, but good fish nevertheless. ●

CONSIDER THE Mayfly



Drawing By Janice Peters

When the United States Department of Agriculture gives a university a large research grant scheduled to expire on January 1, 2000, you can bet they consider the project important.

That's what happened recently when the Cooperative States Research Service, a division of USDA, notified Dr. William L. Peters, professor of entomology and head of the Laboratory of Aquatic Entomology at Florida Agricultural and Mechanical University, Tallahassee, that he is the recipient of such a grant. The laboratory is a part of the Animal Science and Business Department of the School of Agriculture and Home Economics at the state-supported university, founded in 1887.

Dr. Peters and his associates at Florida A&M are engaged in the study of mayflies (Ephemeroptera) in their laboratories on campus and at their field station on the banks of the Blackwater River, near the small town of Holt, Florida, in Okaloosa County. The biological field station building was provided in 1970 by the Florida Game and Fresh Water Fish Commission to aid Dr. Peters in his studies of aquatic biology in the Blackwater River area.

The importance of this research has received worldwide recognition. In mid-August of 1970, top entomologists interested in mayflies accepted Dr. Peters' invitation to hold the first international conference on Ephemeroptera at FAMU. Every continent except South America and Antarctica was represented.

The scientists viewed Dr. Peters' collection of mayflies—one of the most complete in the world. But what interested them most was the Blackwater River, one of the few rivers of its type left in the world—cool water and white sand bottom, unspoiled by pollution.

Almost the entire fresh water portion of the Blackwater River in Florida is located within the Blackwater State Forest, an area offering excellent hunting, fishing, camping, picnicking, swimming, and hiking. A state park there is managed by the Division of Recreation and Parks of the Department of Natural Resources. The park is located north of the town of Harold, Florida.

What kind of insects are mayflies? Why is the research internationally important?

The mayfly, of which there are 1,500 known species, is found in fresh water rivers, streams, lakes, and ponds. Its life cycle consists of the egg, nymph (larva), subimago (preadult), and imago (adult), the latter stage lasting but a fleeting 24 hours or less.

Mayflies are found all over the world except possibly a few small remote islands. They also show up in fossil form in geological explorations in many parts of the world. Mayflies still exist in the same form as their forerunners of geologic ages past. Dr. Peters calls them "very primitive members."

In MAYFLIES OF MICHIGAN TROUT STREAMS, by Justin W. and Fannie A. Leonard, published by the Cranbrook Institute of Science, Bloomfield Hills, Michigan, the authors state that the females of different species lay, on the average, 4,000 eggs, varying in size and shape. The eggs are laid in water and settle to the bottom, usually hatching in about two weeks. When the nymph emerges from the egg, it lives under water until its growth is complete, at which time, ". . . the nymphal skin splits down the back and a winged form, subimago, emerges into the air. The subimago flies from the surface of the water to some sheltered resting place nearby, where, after a short but variable interval, it sheds its skin for the last time and enters the imago, or adult, stage."

The Leonards also point out that as many as 30 molts may take place before a mayfly's growth is complete, and that mayflies are the only insects which molt after developing functional wings.

"A noteworthy feature of the winged stages of mayflies is almost complete atrophy of the mouth parts and alimentary tract, which renders the insects incapable of feeding," say the authors, adding that enough energy must be stored in the insect's body during the nymphal stage to carry it through the balance of its life cycle.

"The mating of adults usually takes place very soon after completion of the final molt. In most species . . . death ensues shortly after mating and egg laying," the writers note.

The reasons for research on the mayfly are varied and, in one instance, unique.

Like some other species of insects, the mayfly serves as food for fish. Most mayfly species in the larval stage are plant eaters, and since most of our game fish feed on animal tissue, mayfly larvae provide nourishing food. They also become food for

(*Continued on next page*)

By SABINE EHLERS

The extremely long "tail," left, distinguishes the male White Willow Fly from the female. These are common mayflies around the Apalachicola River area. They make good fish bait. Looking at his large mayfly collection is Dr. Peters (left) and Philip Tsiu, a student from Hong Kong.

(*Continued from preceding page*)

fish indirectly since the nymphs may be eaten by other aquatic insects which, in turn, are eaten by fish.

The mayfly is also useful to people working on pollution and other environmental problems.

Dr. Peters points out that "the mayfly is an excellent tool in studying environmental relationships," and notes "the importance of a favorable environment in understanding water pollution."

Whether or not a stream is polluted, and to what extent, can be ascertained by an experienced biologist in checking the abundance, or the absence, of nymphs there, since the larvae are sensitive to chemical and industrial wastes.

An obvious economic value of the mayfly is its use as fish bait. Dr. Leonard says the large burrowing mayflies (*Hexagenia limbata*) in Michigan, known there as "wigglers," are sold for a good price to bait dealers, who retail them to fishermen. Another popular mayfly used for bait is the willowfly (*Tortopus incertus*), found in the Apalachicola River around the Bristol area.

Fishermen who find the hobby of fly tying almost as interesting as the sport of angling often imitate the mayfly in their creations.

"Fly fishermen have a 'mayfly' language all their own," wrote Art Hutt in FLORIDA WILDLIFE, May 1968. "They call the adult mayflies 'spinners' and try to imitate them in a type of fly called a 'dun' (for subadult) or a 'drake' (for the more colorful adult). A 'spent-wing-fly' resembles the exhausted or dead male or female as it lies flatwinged on the surface after mating. The nymphal stage is frequently imitated by a streamer-like hair concoction or a plastic-bodied offering."

On the academic plane, a unique reason for worldwide interest in mayfly research is that it may be the clue that proves the truth of the continental drift theory.

Some geologists believe that during the Jurassic period of geologic age, some 150 million years ago, the face of the earth was covered by great seas and two tremendous land masses, Laurasia in the north and Gondwanaland in the south. Then somehow the continents split in two. The southern land mass further separated and became Africa, India, Australia, New Zealand, South America, and Antarctica. (In fact, it is generally accepted that the continents of the world are still moving.)

Where do mayflies come into this picture?

Dr. Peters says, "The mayfly is the most primitive winged insect living on the earth today. These living 'fossils' are found on every continent. This flying insect, whose adult life lasts for but one day, could not have populated the globe, each family so closely akin to the other whether in South Africa or Australia, if the continents had not once been connected or lying very close together."

At the international conference on mayflies at FAMU, the scientists discussed the theory of continental drift, based on the geologic evidence of the similarity of certain strata on different continents.

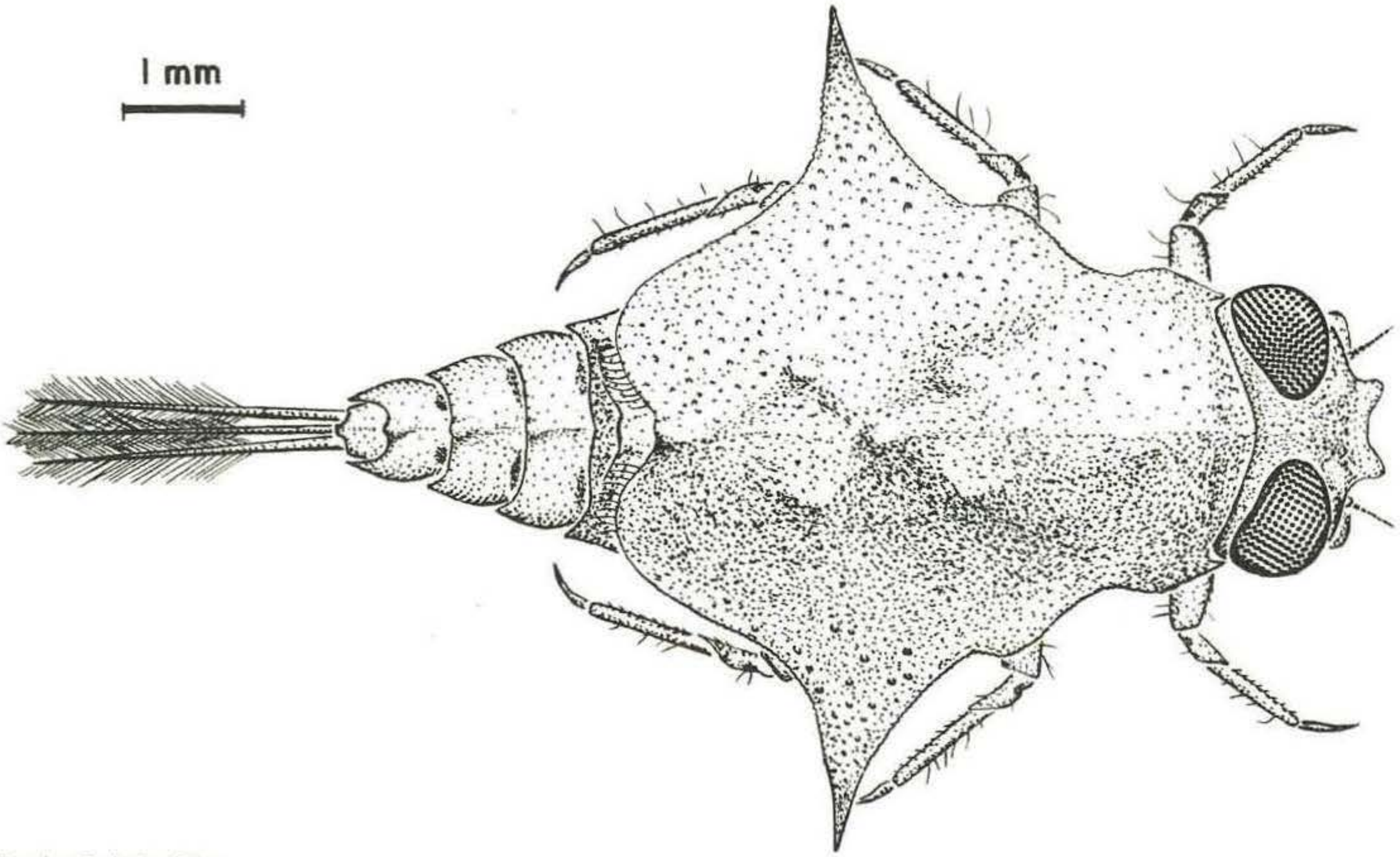
Tom Bell, who wrote a story on that portion of the conference for the PENSACOLA NEWS-JOURNAL, said in part ". . . the biologists believe that the relationship of insects . . . the distribution of modern groups compared with fossils, will someday prove the theory of the continental split unassailable."

In discussing the economic significance of research on the mayfly, Dr. Peters said, "Our research is so new that we really haven't had time to evaluate. There are probably a hundred applications for the data. Agronomists are interested. If they can apply the valuation of soil in one part of the world with that in another, it could result in providing more food for man."

Professor Peters also said mayfly study is important to Americans, and South Africans as well, since a few species of mayflies eat wood. In Africa, such species are prevalent in some areas in which many villages are built on stilts over the water. Mayfly nymphs there could cause serious structural damage, perhaps affecting an entire village.

Other such damaging or annoying aspects of the

Dr. Peters and undergraduate student Michael Makinde from Nigeria look on as Mrs. Petérs completes a mayfly drawing. Her fine artwork, some in delicate color, appears in many entomological journals. Shown, right, is a very accurate representation of the nymph of a mayfly, *Baetisca rogersi*.



Drawing By Janice Peters

mayfly, which make the study of them important, are (1) the fact that in some areas of the United States, the Mississippi River area, for example, where there are large batches of mayflies, some people develop asthma. It is claimed that the insects trigger an allergic reaction resulting in the illness. (2) On occasion, mayflies are annoying to motorists, as they were in the summer of 1971 in the Apalachicola River area. Large swarms of mayflies dashed themselves against windshields like love bugs (*Plecia nearctica*), leaving a mess of sticky bodies and egg masses on every passing automobile. (3) Another nuisance, albeit a minor and fleeting one, is the odor that emanates when large numbers of dead mayflies wash up on a lakeshore.

So much for the insect itself and the importance of mayfly research. Now for a look at the FAMU laboratories, methods of study, and the personnel engaged in the research.

At present, there are two locations in which the FAMU entomology program is conducted, as pointed out earlier. The one at the university is housed in three rooms of the Perry-Paige Building on the campus in Tallahassee. The area contains office space and two laboratories, one of which also contains the library.

The other location is a field station in the Blackwater River area on Lake Carr, at the Game & Fish Commission's Blackwater Fish Hatchery. The field work complements that done in the university laboratory.

In studying a species, FAMU entomologists consider its habitat, seasonal distribution, abundance, and its entire life history.

The exact habitat is described for each stage of the nymphs' development, including bottom soil, substrate, and vegetation, as well as the position of the habitat within the stream. Water chemistry and physical factors are also recorded as part of the study, such as the pH of the water, rate of current flow, water temperature, and the size of a stream and its watershed. The relationship of other organisms to a species of mayfly is also considered.

Seasonal distribution is studied in detail. Nymphs are collected throughout the year at selected sites with the use of hand screens and electrical shockers. Relative abundance of the nymphs is noted. Adult mayflies are also collected at selected sites, in light traps and huge nets hung across the river.

In order to ascertain whether a species matures only during a specified season or at any time during the year, the researcher studies and records emergence peaks on the basis of the relative abundance of the insects.

Mating habits and egg laying are observed in the field. Weather conditions such as air temperature, wind velocity, and amount of sunlight are compared against variations in mating and egg-laying habits.

Swarm markers, physical land objects on which individuals of a species congregate for mating, are also observed.

Life cycles of various species are studied in the laboratory at the university. Under controlled conditions, the eggs are reared to nymphs and then

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through the other stages, each being carefully noted and described and compared to the seasonal life history and distribution data obtained in the field.

The present staff is headed by Dr. Peters, an eminent entomologist with a Ph.D. from the University of Utah, one of the top schools in the country for study of entomology. He has received countless fellowships and research grants enabling him to study mayflies on every continent but Africa.

Janice G. Peters works with her husband as illustrator of aquatic insects. Her work in this area is internationally known, having been published in 10 publications in various countries. She works in both color and black and white.

Mrs. Peters is also a leading expert in rearing Ephemeroptera, and she and Dr. Peters are editors of EATONIA, an international journal of aquatic biology.

Other members of the FAMU entomology department are well-qualified in research or teaching. William Beck, Jr., associate professor of aquatic entomology, wrote his master's thesis at the University of Florida on the ecological distribution of cold-blooded vertebrates of a north Florida lake.

Col. John Reynolds (Ret.), with a degree in biology from Florida State University, has traveled widely in Central and South American tropics collecting fishes for the Stanford Natural History Museum. He serves as curator of the large general insect collection for the department.

Mrs. Jane M. Hartley, a technician, received her master's degree in fresh water ecology from the University of North Carolina at Chapel Hill. She is working in the FAMU laboratory on the ecology of the species.

Reuben Capelouto, a part-time assistant professor of entomology, received his degree from the University of Florida and teaches a course in structural pest control.

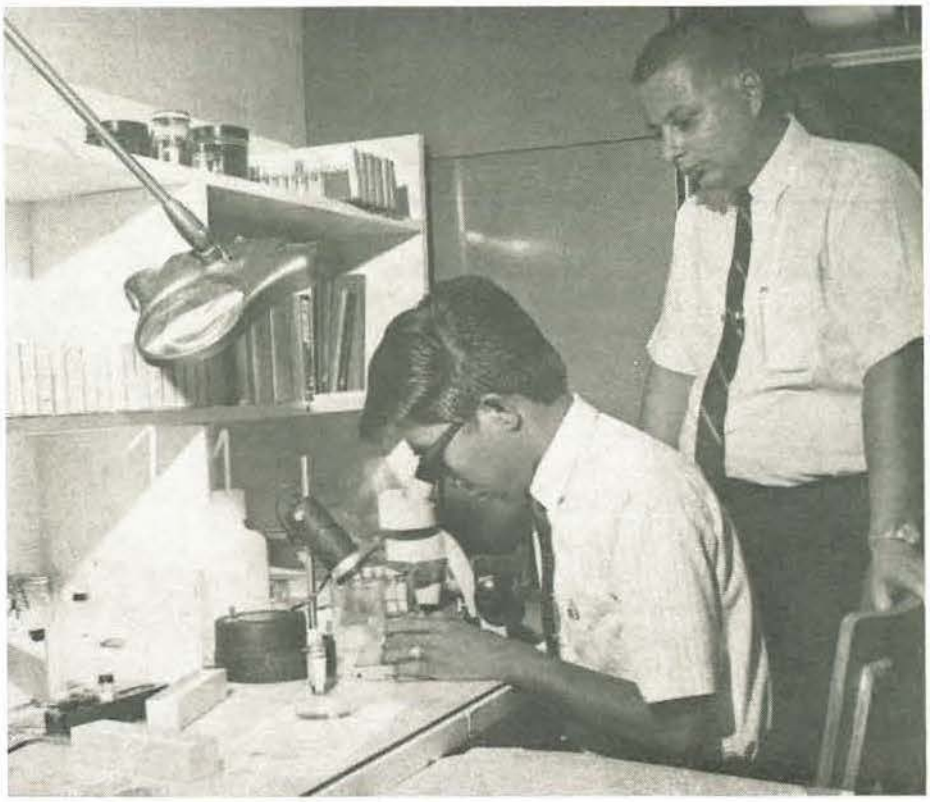
By January 1, 2000, when the USDA grant expires, Dr. Peters hopes FAMU will have a full program of environmental entomology centered around the study of insects living in fresh water, and water quality. Such a biological study program does not exist in Florida.

If Peters' plans for growth are realized, there will be additional faculty and a new building that will include classrooms, conference rooms, office space, research laboratories, including rearing rooms for insects, a museum, and a stockroom.

The activities at the field station on the Blackwater River will also be expanded to include teaching as well as research.

Dr. Peters also hopes the entomology department will be able to accept the invitation of the University of Curitiba in southern Brazil to join them in developing a field station for aquatic research there.

The program at FAMU has already attracted students from the Philippines, Hong Kong, Africa, and South America. The unprecedented grant from the Department of Agriculture, and grants from other sources, should make it possible for Dr. Peters and his group to expand their research on Ephemeroptera and develop a program of entomological study of such quality and significance that students from throughout the United States, and from many other foreign countries, will be eager to attend. ●



Manuel L. Pescador, a graduate student from the Philippines, examines a mayfly specimen under microscope at the campus facilities. Dr. Peters, standing, does his field work on the Blackwater River in western Florida. A building has been made available by the Commission at its Blackwater Fish Hatchery in Santa Rosa.

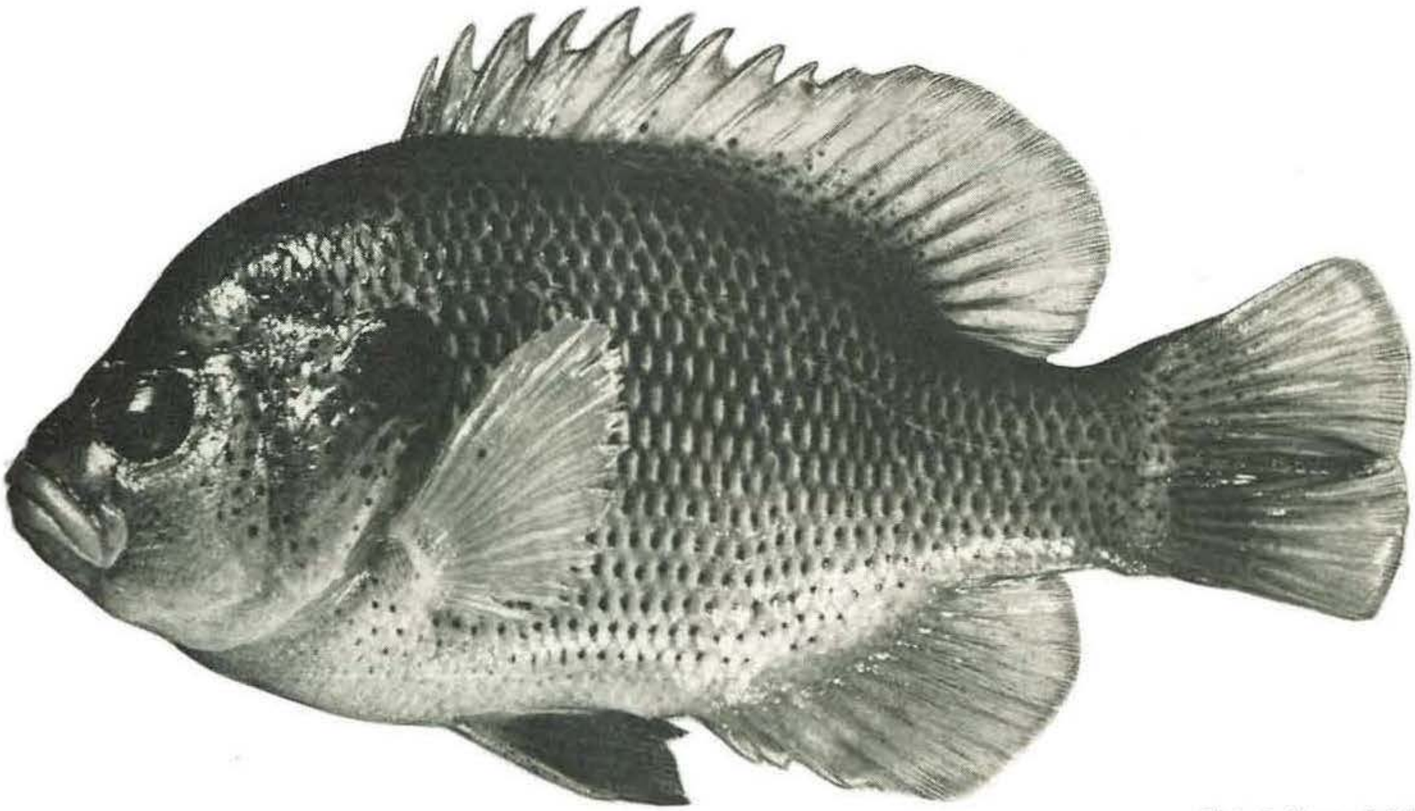


Photo By Vernon Ogilvie

stumpknocker

one of the smaller size panfish—seldom sought but often caught—it rates as good for both fishing fun and table fare

By **GENE SMITH**

"ALL BABIES ARE BEAUTIFUL and all big bream weigh a pound," penned outdoor sage Eddie Finlay many years ago in SOUTH CAROLINA WILDLIFE. But even with the "help" of the average angler's imagination and faulty memory, stumpknockers don't get very big. While "some bream have been known to double their weight within 24 hours after being caught," according to Finlay's baited banter, the stumpknocker's top size is only about six inches in length and maybe as many ounces in weight for a female full of roe.

The reference books on fishes list this bantam bream as the Spotted Sunfish, *Lepomis punctatus*. Most Florida fishermen cling to the familiar name stumpknocker, however. (I have never heard or read anything on the origin of this aggressive-sounding common name, which seems to me to be more than a little out of character for such a timid little bream.)

Stumpknockers are the least known of the catchable-size panfishes, the reasons for this being their lower availability to fishermen, their smaller size (making them less sought after), and their choice of habitat. While listed as common throughout the state, this designation is misleading since they are not found in every lake and pond, and they are never abundant in those waters harboring them.

Small lowland streams, and lakes into which these run, are the best places to catch stumpknockers. They prefer clean, moving water with plenty of hiding places—weeds, grasses, and similar protective cover.

Fishery investigations have turned up stumpknockers from one end of Florida to the other. The small watersheds of the panhandle have good numbers, as do those of northeast and central Florida. But stumpknockers never are as thick as bluegills.

Writing in a 1968 report on the fish populations of the water conservation areas of the Everglades, biologist Walter J. Dineen said, "Small spotted sunfish are fairly common in the marsh. Individuals larger than four inches are seldom encountered in marsh samples but are commonly found on the levee berms in the conservation areas. Of the edible-sized bream species, spotted sunfish are generally the least numerous in both canal and marsh situations."

While these small, thick-bodied panfish aren't exactly as thick as fleas anywhere in their range—from South Carolina to Florida, with a subspecies having reddish spots being found from extreme west Florida up the Mississippi drainage to southern Illinois—they do make light tackle angling and canepoling a little more interesting. And their flesh is as tasty as the next bream on the stringer. ●

Windy Weather Bass

By MAX HUNN

GENE LECHLER'S FACE was long, a study in frustration, as he met us at Riverside Villas' Yardarm Docks in Homosassa for our planned Spanish mackerel fishing trip.

Glancing at the waving Spanish moss in the giant oak tree, I knew why Gene was so dejected. Unfamiliar with the area, Charlie Keefer of Daytona and Lee Hogue of Tulsa, Oklahoma, other members of our party, looked questioningly first at me, and then at Gene. Obviously, something was amiss.

"No mackerel fishing today," announced Gene rather dolefully. "Too much wind. We couldn't stand up in a boat the way it's blowin', and it'll get worse with this front coming through."

He pointed to the swaying Spanish moss. "That's the real tipoff. When the moss moves like that inland, it's no use trying to go outside."

Charlie, a veteran Florida angler, wasn't too surprised, nor disappointed. Lee, a Tulsa bass fisherman, was. He'd counted on the salt water mackerel fishing trip. The trip had had tremendous potential. Only the day before, Gene and Bob Hadley had boated 96 "macks" when they found them schooling a few miles southwest of No. 4 marker. They'd cleaned out their tackle boxes because the Spanish cut off their jigs despite short wire leaders. But that was yesterday. Today, 15-knot, or higher, winds made offshore fishing impossible.

"Well," remarked Lee, "there goes the old ball game. You can't fight the weather."

"Not exactly," I replied, knowing Lee was unaware that the Homosassa, like so many of the Florida middle Gulf streams, was a two-weather river. You can always find somewhere to fish if you can't go to the open water outside because of the wind. This is one of the advantages of fishing rivers like the Homosassa, Chassahowitzka, Crystal, Withlacoochee, Waccassa, and Suwannee, to mention some of those on this coast. (The same applies to east coast rivers, although there aren't as many of them. Any Florida stream emptying into the sea, that hasn't been damaged by dredging, housing developments, commercialization, or pollution, is a dual, all-weather fishing area.)

Largemouth bass from the lower Homosassa River don't get big, but they're fun to catch. Lechler, Keefer and Hogue (left to right), above, admire two typical fighters. The waters at right, near salt-fresh water line, also offer channel bass and speckled trout. Below is Old Homosassa.

"Gene," I asked, "what about bass fishing?"

"No problem," he replied. "We can take my small boat. I'll guarantee you'll catch bass with shiners if you know how to fish live bait. A couple of weeks ago, I had a party that tangled with 50-odd, not all keepers, of course. They were good shiner fishermen."

"Only live bait?" I queried, having a personal preference for artificials.

"Yeah," answered Gene. "The bass haven't been hitting artificials lately. You might pick up a couple, but if you want to score you've got to use shiners."

It really didn't matter to me, nor to the others. After all, action—bending a rod and stretching a line—was our goal. If it took shiners to arouse the interest of the bass, then shiners it'd be.

We got aboard Gene's smaller boat. He has two, one a big inboard-outboard with deep-V hull for going offshore, and a 19-foot shallow draft, open Ski-Barge powered by a 60 h.p. outboard. It's an ideal rig for running the shallow waters we planned to fish.

The fresh water in the Homosassa extends several miles downriver below the little town before becoming brackish. In addition, there are a number of creeks, some named, some nameless, emptying into the river. All harbor black bass. Often you catch salt water trout and channel bass (redfish) along with largemouth black bass. I've done this often fishing with Gene.

One day while taking photos on a father-and-son combination hunting-fishing trip—Riverside Villas also has an excellent hunting preserve with special family rates—I grew bored waiting for my friends to catch some speckled trout for pictures. The photo boat was anchored near shore while the party and their guide were fishing a trout hole in the river. Picking up my spinning outfit, with 10-pound test mono, I tied on a topwater Rebel-type plug and began idly casting towards the shoreline, hoping maybe a wandering trout might find the lure's action enticing.

On my third cast, I'd barely started a noisy, erratic retrieve when, bingo, I was in action! It was a solid strike. Momentarily, my fish peeled off line against the light drag. Then the pressure of the rod slowed him. Gradually, I worked him towards the boat, expecting a trout to surface wallow. Suddenly, he broke water. It was not a trout. It was a chunky two-pound black bass that had been lurking near the bank. That was his only jump. Soon I lifted him into the boat and then released him.

I went back to camera work as the sea trout started taking a healthy interest in the models' shrimp-tipped jigs. But I had been reminded that anything can happen fishing the Homosassa.

Wind was our problem on this particular trip. Not only was it windy outside, but the wind was so strong that finding a place to anchor and fish up the river was a problem. This was where Gene's experience counted. He headed our boat downriver

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Photos By Kit and Max Hunn

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and then swung into a nameless canal leading to Price's Creek, one of the better bassing areas—if we could find a sheltered anchorage.

We did.

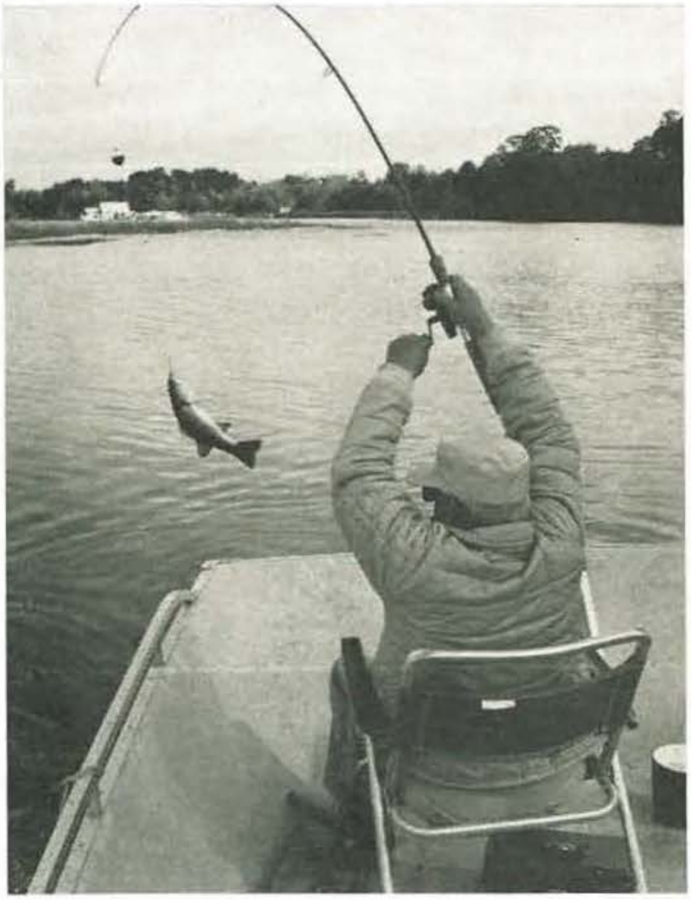
He eased the boat over near a weedy bank and anchored within easy casting distance of the shore. Our shiners were medium size—not the lunkers sometimes used for black bass in some areas. The largemouth black bass in the Homosassa area waters won't set any world records, nor did we expect to encounter any lunkers. However, Gene has guided parties to fish as big as nine pounds, quite a respectable bass by any standards. Also, he's had parties who have caught numerous five- and six-pounders.

Gene believes in using a small float in order to minimize the resistance the bass feels when mouthing the shiner. Some anglers prefer big floats, but his experience has been the smaller floats produce the most fish around Homosassa.

Charlie and Lee quickly discovered there is more to shiner fishing than might be supposed. It had been years since either of them had used live bait for bass, and their techniques were rusty, as they readily admitted after missing a pair of strikes.

With the wind, there was always a slack line problem. Watching the shiner dance madly about when a bass came nosing around was hard on the nerves. You had to let the bass run with the shiner for at least a 10-second count, then take up the slack, and finally "rare" back to set the hook. A lot easier said than done.

Charlie was talking to himself after a couple of misses, and Lee was muttering something under his breath about these confounded Florida bass



don't play fair. He also missed a pair of hits. Me? I was getting nothing plug casting. We were certain the bass were here, but we weren't connecting.

Gene was beginning to think he had a party of all-thumbs amateurs, and we weren't too certain about ourselves. Gene suddenly exclaimed, "You've got a bass working, Charlie! Let him run!"

Charlie had already noticed his float's frantic

movement away from the weeds, and opening the bail on his light spinner, let the line peel off. We were all counting. After 10 or so seconds, he closed the bail, quickly took up the slack, extra long because of the belly caused by the wind, and then, as the float moved again, struck hard. It was a solid connection. With his light rod, he had his hands full.

The bass tried to head for the grass, but Charlie checked him. Then he tried to make an open field run, but the whippy rod stopped him quickly. Temporarily, it was a stalemate—and then Charlie began to regain line. The bass didn't like being led, and took to the air, but the hook held. Gradually, Charlie worked him alongside and lifted him aboard.

He didn't need to say it, but it was obvious what he was thinking. There's one that didn't get away. He put two more in the boat before Gene decided it was time to move to another hole. Gene doesn't believe in fishing out a hole.

Keefer, left, does it again. He boated nine "keepers," below left, while his buddies mostly caught "fingerling" fish, like visitor Hogue's, below, which were released to grow some more.

Photos By Kit and Max Hunn

At our next stop, Lee continued to have problems, but Charlie began to get the touch. Maybe he had a better bait-fishing background. He landed a two-pounder at this stop, and I even got into the act.

I'd had no luck with artificials. Lee had missed a strike with his shiner, and I flipped a greenish Spinana plug in the general area of his miss while he was re-baiting. I twitched it a couple of times with no results. Wanting to get out of the way for Lee to make his next cast, I began retrieving rapidly. Bang! A small bass hit like it was his last meal, startling all of us. Instinctively, I set the hook and began working my unexpected foe towards the boat on 8-pound mono and a light rod. It was a fine outfit for casting, but not for setting the hook. Suddenly, the bronzeback erupted in a typical leap and tossed the plug back to me.

"There's one bass that liked a plug," I remarked to no one in particular. "Yeah," replied Charlie, "but they only count in the boat."

True, but I didn't really care. I had stirred up a bass with a plug when the bronzebacks weren't suppose to be hitting. I was satisfied. Before the day was over, I repeated the performance. There's nothing quite as satisfying as having a bass sock a plug, in my opinion.

Charlie was becoming adept at hooking the bass with shiners. Lee? He was having trouble, and we began to make joking remarks about the Oklahoma bass he was used to encountering.

"I'll admit they aren't like these," he remarked. "Maybe I ought to start this day over again."

Finally, he connected with a bass—a tiny yearling who must have been out of his mind to even think of hitting the shiner. An Oklahoma bass we dubbed his prize, as Lee returned it to the water. We needled him good-naturedly the rest of the day about Oklahoma bass, despite his insistence that Sooner bass weren't all small.

We'd been blessed with a heavy overcast most of the morning. Then the clouds broke and the bass quit hitting on schedule. There was no use fishing even a two-weather river with the bright Florida sun shining on gin-clear water.

But we were satisfied. We'd boated one limit. Charlie had put nine keepers in the boat. Lee had one—not an "Oklahoma bass"—plus several tiny ones he'd released, and I'd had a pair of bronzebacks on plugs, also put back.

Considering the weather and the circumstances, it wasn't bad fishing. Homosassa's two-weather waters had produced again, and we'd all gone back to fishing basics, again re-learning that there's an art to shiner fishing, and don't let anyone tell you otherwise.

A two-weather river is a mighty handy asset in Florida fishing. ●

Bridles and Birds

for bird watchers—a different style—with added interests

"CHRRRRRRR!" My horse stopped dead in his tracks and snorted. I started in the saddle. Settled back. Looked—saw nothing. Rattlesnake? Too loud.

"Chrrrrrrr!" The noise came again, from directly in front of and below me. I peered around the horse's head and followed the radar of his ears. Blocking our way was a killdeer, wings half spread and vibrating angrily, beak open, making aggressive, darting movements toward us.

I was not prepared for this. I was walking my horse across a wide pasture, lush with new grass, the Florida May sun biting my neck, the dark pine needles glinting in the sunlight, and a fresh breeze drying my shirt. It had been a good ride, and I was relaxed in the saddle, letting my mount walk homeward while I thought great thoughts and made extravagant plans.

Photo By Mike Fogarty

Now there was an insane bird trying to chase me and a big thoroughbred out of the field! Then I got the picture. Behind the belligerent bird, in a shallow cup on the bare ground, were three eggs.

I had found killdeer nests and young before, but I had always been afoot and the adult birds had invariably tried to decoy me away by feigning injury.

I swung my horse away from the killdeer and retreated. If I turned back, she lunged at us with her strident "Chrrrrrrr!"

I left her the field of honor for the day.

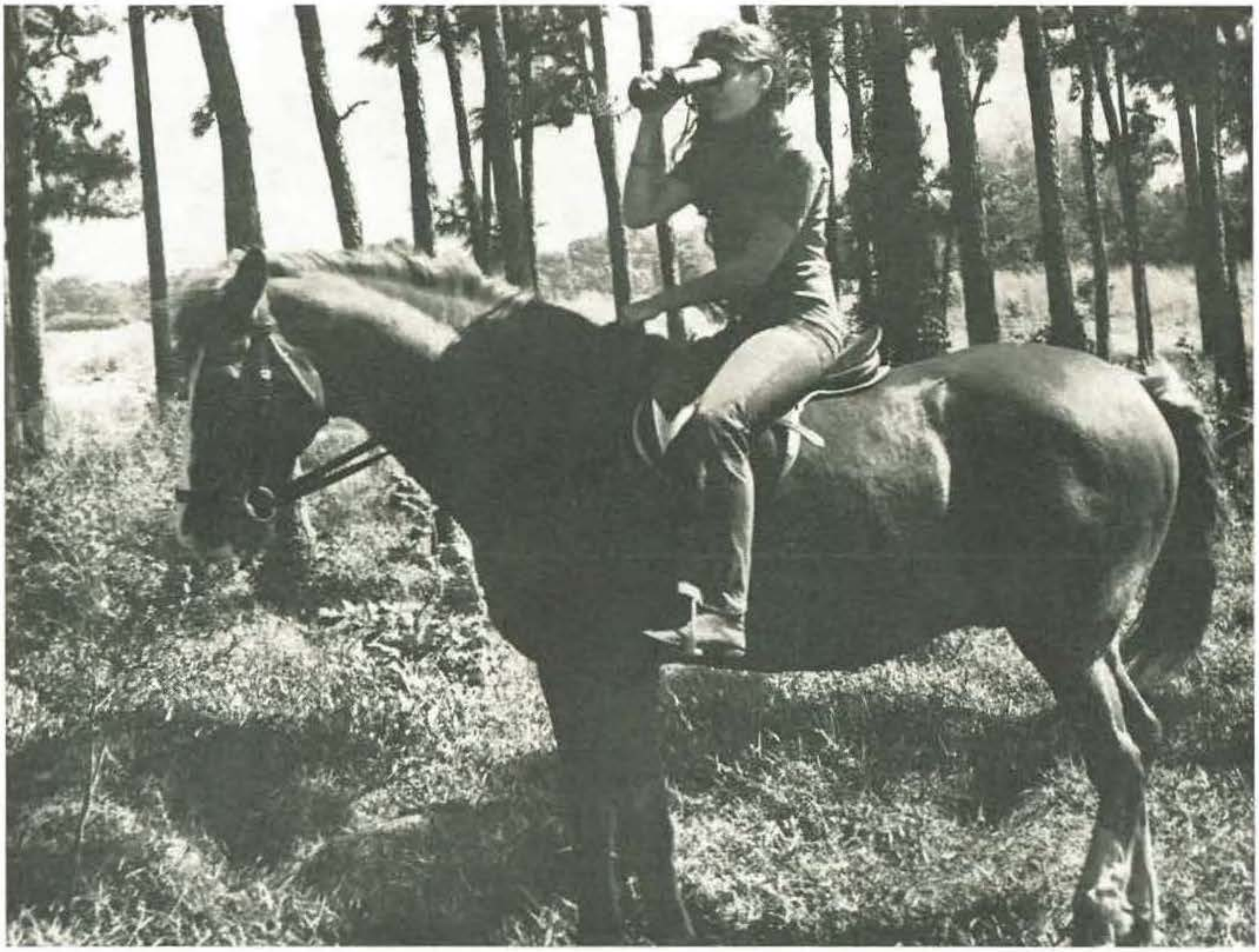
On several subsequent trips to the nesting area, I found other nests but was always outwitted in trying to photograph them. On foot, with camera, the adult birds tried to decoy me, in the traditional "broken wing" fashion, because of eggs or young birds. If mounted, the attack syndrome developed. I began to think they had a grudge against horses.

Finally, in reading Bent's NORTH AMERICAN SHORE BIRDS, I found the answer. Killdeer use a warning-threatening tactic when approached too closely by grazing animals. So . . . on horseback, apparently, I became a quadruped.

One unanswered question still nags me: Do killdeer decoy humans because we are dumb enough to fall for it and threaten four-footed animals because they are smarter? I will not pursue this. I am afraid of the answer.

Light had dawned. This explained why I could ride almost within arm's length of burrowing owls as they sat on their fence posts, swiveling their heads to follow me with blazing yellow eyes. But when I came back and dismounted to get these wonderful pictures at close range, I always found the owls regarding me balefully across half the width of the pasture— and never any closer. Camera in hand, mounted—close quarters again. Scientific reason suggests that the birds do not fear the camera. They fear humanity.

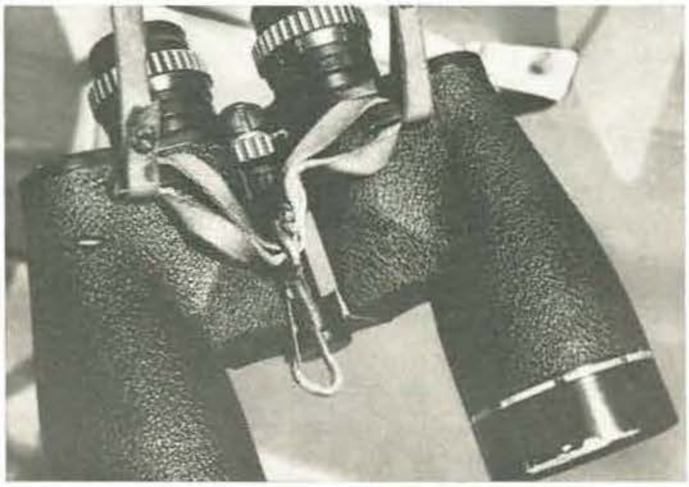
It is well known that all birds—depending on the species—have varying "proximity fuses," distances they will permit themselves to be approached. Now I understood why coveys of quail burst from under the horse's feet, but flushed wild or never showed at all when I walked the same fields. Meadow larks fluttered and sang within a few feet as I rode by.



Photos By William Peck

Birding from horseback has many advantages, among them the fact that shy birds like the burrowing owl, left, are more approachable. Sue Peck, above, has spotted him. Note strap and clip on glasses, below, for hooking to saddle on rides.

By WILLIAM PECK



I realized that this had been a real contribution to the pleasure I found in riding the woods and pastures. My horse and I as a unit did not frighten them.

Thus began a new enjoyment of the out-of-doors. At first, I carried binoculars on their regular neck strap, slung on my chest. This didn't work. I ride a long-striding thoroughbred, and we jump most fences. The glasses were cutting my shoulder or neck and banging from my face to my kidneys. I riveted a harness strap to them with a short cross-piece of latigo. For longer rides, they were snapped into a D-ring on the saddle—and were still ready at hand. But it was cumbersome when following a bird cross-country. The elegant neck strap finally broke after a fence one day, and I replaced it with a short, stout piece of latigo. It was just right. When they were not on the saddle ring, I carried the glasses across my chest from the left shoulder. Shortened, the neck strap brought them under my upper arm, where they could be snugly held during a jump. They could still be swung up to my eyes with one hand for quick looks.

I have found many advantages in mounted bird

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watching. If I flush a hawk, I can follow him until he settles in another tree and get a second look. The distance would be impractical on foot.

There is a great horned owl whose tree I can check every time I go out. I first saw a red-headed woodpecker flash in the distance while mounted and was able to follow him, get a close-up look, and find its nesting tree.

Shrikes sit and regard me from one fence post away. Pine warblers flit among the branches all around me, robins feast happily nearby, mockingbirds sing, and herons fish. Countless other species hop, glide, preen, and sing for me when I'm on horseback.

But some birds remain wary. Great blue and little blue herons are difficult to approach. Green herons even more so. Hawks on the wing are rather indifferent, but I can follow as their sweeping circles carry them across the fields, sometimes a pair crying to each other high in the air, buoyed by the sweeping wind.

Some words of advice: Don't ride with a long neck strap or with the glasses in front. It could be dangerous. No horse, however faithful and gentle, can be wholly trusted; he will shy instinctively at some time. It could be serious to fall and land with your face on a pair of binoculars. Swinging glasses can damage the eyes, or knock out a tooth with ease. There is an elastic device which will hold binoculars against the chest or under the arm. Its disadvantage is that the glasses will not fall free in a spill. They could injure the chest wall.

Small, flitting birds like the myrtle warbler, below, are plentiful when migrating through Florida, yet are hard to observe. Sitting quietly may bring them into camera range.

Photo By Wallace Hughes

Photo By William Peck

No horse can be expected to stand still enough to allow a detailed study of birdlife. Try dismounting and tying the horse for lengthly picture-taking sessions—but tie firmly!

Generally speaking, it is possible to cover more ground on horseback—more varied wilderness habitat. Favorite trees can be checked, owl burrows visited, ponds and canals cruised, pasturelands investigated, and both the pine woods and scrub explored. Each place harbors its own species, and in an hour or two I see them all.

When you find an interesting birding spot, or an unusual species you want to photograph or observe at length, dismount. Even the quietest horse will move enough to make detailed study or photography impossible from the saddle. This is particularly true when trying to observe or identify small, quick-moving species such as warblers and sparrows, wrens and finches.

Also, there is a real limit to what can be done on foot while attached to a horse. Poking about looking for young birds and nests can be a trial with a mount in tow. It is easy to go out with a halter over the bridle, a tie rope around his neck, and anchor him to a tree while you explore and get close-up views and/or pictures.

If you should be riding a strange mount, such as a rented animal, be sure to tie securely (or if you suspect your own horse won't stay put), for the return of a riderless horse is always an occasion for excitement at the stable—and embarrassment for the rider. It is dispiriting to look up at the thunder of hooves and see his hindquarters, framed in flapping stirrup irons and leathers, disappearing rapidly homeward.

I recommend mounted bird watching. It gives an added dimension to riding, and certainly to birding; an enjoyment of the out-of-doors not previously appreciated. Isn't that reason enough to hang a pair of glasses on your saddle? ●

Game Management Notes

THE FLORIDA Game and Fresh Water Fish Commission has banded and color-marked some 200 sandhill cranes at the birds' wintering grounds in the north central part of the state, according to wildlife biologist Lovett E. Williams, Jr., of Gainesville.

The large, gray-brown cranes, with conspicuous red crowns, may be wearing red or green plastic wing tags (measuring 3 × 1 inches) or colored plastic leg bands.

Readers in any state or Canadian province are asked to report sightings of marked sandhill cranes to:

Wildlife Research Projects Office
Fla. Game & Fish Commission
2606 N. E. 17th Terrace
Gainesville, Florida 32601

The researchers particularly need to know the *date* and *exact location* of each bird observed, and tag colors, of course. In the past, marked cranes have been seen in Georgia, Tennessee, Indiana, Ohio, Michigan, Wisconsin, and in Manitoba, Canada.

Cooperators will be supplied with a report of research findings, when compiled, listing all sightings of the migratory sandhills, which feed in broad fields and marshlands.

The first departures of marked birds northward from Florida occurred in late February, according to Williams.

IN THE STATEWIDE post card random mail survey following the 1970–71 hunting season, 222,814 resident licensed hunters reported hunting 10 game species and three unprotected fur bearers.

Putting in a total of 5,257,700 hunting days, the resident hunters harvested approximately 48,624 deer, 25,200 wild turkeys, 2,423,520 quail, 1,630,060 squirrels, 36,034 wild hogs, 546,965 ducks, 2,157,380 mourning doves, 215,251 snipe, 7,513 woodcock, 429,734 rabbits, 4,295 foxes, 97,581 raccoons, and 10,644 bobcats.

By regions, Northwest Florida fielded the most hunters, 57,000, followed, in order, by Southern—51,000, Central—48,000, Northeast—47,500, and Everglades Region—39,000.

The calculated deer harvest was greatest in the Central Region (14,600), followed by Northwest (14,000), Everglades (11,000), Southern (5,000), and Northeast Region (4,500). All figures are rounded.

The average number of man-days, or hunter-trips, required to harvest one individual of a particular species are interesting: deer, 31.22; turkey, 13.77; wild hog, 8.43, and ducks, 0.54.

The random mail survey has been conducted in Florida for a number of years. It provides basic information on trends in game populations, harvest, and economic aspects of Florida hunting. It is a cooperative project of the Commission, the Bureau of Sport Fisheries and Wildlife, and the Southeastern Cooperative Statistical Unit at the Institute of Statistics, North Carolina State University at Raleigh.

WIDE USE OF POISONS in predator control work by the federal government was scored in a report released in January by the Advisory Committee on Predator Control.

One of the recommendations, addressed to the Council on Environmental Quality and the Department of the Interior, called for total cessation of the use of poisons to control predatory animals, widely practiced on public lands.

". . . We have stressed the undesirable consequences of a control program which depends predominantly on non-specific poisons, and have recommended in its stead the selective control of marauding individuals (among predator species) by shooting, by denning, and by the use of more humane traps. The widespread and often massive use of poisons of largely unknown effect has become unacceptable to the public . . . We recommend that a fundamental change be made in the federal program, and that the present independent use of poisons be stopped completely by means of stringently enforced laws providing heavy penalties . . . ," say the report writers in their summary and conclusions. ●

Photo By Wallace Hughes

Widespread use of poisons to "control" bobcats, right, and other predators, is being frowned on by environmentalists.

sheepshead thievery

angling action where the fresh and salt waters join

THE VERTICAL BLACK and white stripes the convict fish wears could not be more appropriate, nor could its fanciful name. It is a past master of petty larceny.

Many an angler has stomped up and down the bank or pier in frustration as a school of pesky sheepshead stole one bait after another from his hook. To this fish, the amateur angler is like a restaurant waiter serving free lunches. The experienced fisherman may laugh to himself as the greenhorn is fleeced of his bait, but he'd better not laugh out loud. Sheepshead have driven more than one seasoned angler to despair.

I was about 14 when I had my first full-scale run-in with a school of convict fish. I was fishing from a bridge at Boca Ciega Bay near St. Petersburg. They nibbled, bumped, and ground their way through nearly two dozen of my live shrimp—all I had—before I finally snag-hooked one in the back. I realized I had been robbed as soon as I saw those

Photos By Tom Weber, Jr.

A fine sheepshead is shown by the author's 2½-year-old son, who helped land it near St. Lucie Inlet. The fish was hooked in the corner of the mouth—a convict fish's Achilles' heel. Sheepshead fishing along Indian River at Jensen Beach, left, is leisurely sport. There is no way of telling how much bait has been pilfered along this Intracoastal Waterway seawall.

By TOM WEBER, JR.

prisoner's stripes break the surface. I had heard folks talk about the difficulties of hooking one of these fish, but until then I didn't realize just how tricky they can be.

Once they exhausted my live bait supply, they deserted me for greener pastures. I spent the rest of the day casting a white feather.

You can get a better idea why a sheepshead is so difficult to hook by examining the inside of its mouth.

The protruding lips are big, but hard as bone. Instead of regular teeth, the sheepshead sports big, knotty grindstones in its mouth. It is almost as if in the process of evolution the sheephead's choppers evolved for the principal purpose of blunting hooks. Of course the original purpose of those grindstones was only to aid in eating shellfish.

Crabs, barnacles, and a wide assortment of other crustaceans are meat and potatoes to this fish. There are few things in the world that a big sheepshead would rather do than hang out in the shade under a bridge or dock. There it can gnaw on the encrusted pilings and pluck live shrimp off some unfortunate's hook.

Skin divers submerged near where sheepshead are feeding can hear the snap, crack, and crunch of the fish chowing down on the hard stuff. When enough of them get going at once, it sounds, to the skin diver, like the time they gave away free popcorn at the Saturday afternoon matinee.

Sheepshead do not rush as they feed. They graze. Other saltwater fish have to hustle because they have to chase down their supper. Since they do not wolf down their food, sheepshead are less likely to blunder onto a hook. The fish will prod a bait, gingerly nip at it, and sometimes even swirl around it a few times before biting down. In a word, sheepshead are cautious.

Even if one finally does make the decision to bite down on the bait, the hook has got to get by those impenetrable grinders. A sheepshead mashes the daylights out of whatever it bites down on before swallowing.

A mangrove snapper is a good contrast to a sheepshead. The mangrove snapper frequents similar waters, but its hunting and eating techinque is almost exactly the opposite.

The snapper hits and runs, trying to inhale the bait in the process. The snapper wants to get the whole thing in his mouth behind a row of needle sharp teeth, which conveniently slant toward his stomach. If a mangrove snapper has its mouth shut on a bait, the chances are relatively good the hook is going to find a soft spot when you pull back.

There is one catch. Many a mangrove snapper is big enough for the frying pan but not big enough to get the entire bait (a big live shrimp for instance) in its mouth at once.

Sheepshead, big and small, are careful about what finds its way past the armor and into the tender gullet.

There are a few things an angler can do to tilt the odds a little his way.

A number of bridge fishermen, for example, have taught themselves to react with chain lightning speed, at exactly the right second to nail sheepshead. This kind of fishing requires that the angler develop a "feel" for when to jerk back. There is a

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good deal more art than science in this technique. Some can learn it and some (myself included) never do get the complete hang of it.

A neighbor of mine, Hubert E. Sheppard, taught himself this technique while fishing from the Evans Crary Bridge over the St. Lucie River at Stuart.

He goes to the bridge with an 11-foot surf rod and a two-ounce weight. The big weight allows him to put his bait right up against one of the pilings without the tide pushing it away. His rig drops straight as a carpenter's plumb line.

Hugh leans as far over the rail as he can and keeps an eagle eye on where the line enters the water.

The instant the line starts to move away, he hauls back hard. If he hooks the surprised fish, he uses the big rod to horse it away from the bridge pilings. All it takes is for the taut line to brush by the sharp barnacles on the pilings and it will be cut.

A five- or six-pound sheepshead is no dead weight at the end of your line. It will put up more than a respectable fight and even with a big rod an angler has his hands full.

The biggest one Hugh has caught went 9 pounds, 13 ounces, "But I lost plenty of them too," he points out.

Use lighter tackle with a fine hook honed razor sharp when you go for sheepshead from a bank or boat. This way even the small ones will give you a workout if you can hook them.

Look for sheepshead where there are submerged rocks, reefs, or old wrecks. You will also find them on the shallow flats. Smaller sheepshead particularly seem to like grassy bottoms where they can ferret out crustaceans.

Sheepshead will often hit live shrimp and sometimes frozen shrimp and cut bait. However, it is easy for this fish to clamp down on the head or tail of a live shrimp and pull him off without ever getting close to the business end of the hook.

For a sheepshead, real first class dining means hermit or fiddler crabs or the deluxe supreme—sand fleas.

There are no sure things in fishing, of course, but going for sheepshead with any one of these three baits is as close as you can get to a full guarantee. Put any one of them on your line and if there are any sheepshead in the vicinity, they will be hard pressed to pass up your hook.

You can usually find hermit crabs in Florida by wading the shallows or looking along the shore. Watch for the outline of an old shell. When you find one, turn it up. You will be surprised how often you will find a hermit crab retreating into his borrowed home.

Stuart News Photo

This beauty of a fish was outsmarted by Ernie Lyons, Editor of Stuart News, while fishing on a wild stretch of the North Fork of St. Lucie River. These scrappers go up to 15 pounds. They don't usually take artificials; like small crustaceans.

Crack the shells open with a hammer or tire iron and you have a sheepshead delicacy. Thread them on the hook and be careful not to let much hang off the side. Remember, these fish make a habit of grabbing the dangling end and skinning the bait off the hook without getting nicked by the sharp point.

Usually, it takes a little more luck to find fiddler crabs. Look for them near mangrove roots and on sand bars left dry at low tide. In the Indian River near Stuart, I have often found them by the hundreds scuttling around on overgrown spoil islands. The ones that are about the size of a quarter are best. Hook them straight though the shell. You will have a sheepshead tapping at the end of your line before you get the drag set.

Sand fleas may be the most difficult to get and, no doubt, for this reason, sheepshead seem to like them best of all. Rake the sand fleas out of the sand at the beach next to the surf line. They rebury themselves each time a new wave slides back out.

It is unusual for a sheepshead to hit an artificial lure. However, they have been known to pick up small, bright feathers. Pompano fishermen will sometimes catch sheepshead on the small feathers they jig.

From what I have said, you may be thinking that going for sheepshead can mean a lot of aggravation. You are absolutely right. It *is* a lot of aggravation —at least up until the time you start to catch them. When this happens, your entire outlook changes. You have the happy satisfaction of knowing you have whipped no ordinary fish. You've brought in the best bait thief in the drink. ●

Hunting Scopes

a variable-power scope may be the answer to needs under changing field conditions—if you don't mind sacrificing slight optical precision

By **EDMUND McLAURIN**

THERE IS GREAT interest in variable-power telescopic sights these days. Some believe that for hunting they offer the ultimate in good sighting equipment. Actually, a variable is an optical compromise in sighting efficiency.

No matter how seriously and carefully you try to focus a variable-power hunting scope, there will be some sacrifice of optical performance along the scale of minimum and maximum magnification. Besides the size of the field of view, clarity and resolution will also be affected.

Also, in a variable there are more working parts to possibly get out of adjustment or vary in precise movement from one manual change to another, and more moisture-sealed points vulnerable to eventual leakage.

I prefer a fixed-power scope for hunting—a 2½X for fast shooting at targets moving amid thick brush, and a 4X instrument for open country hunting.

However, in all fairness, I must concede that some of the better quality variables, like the lifetime grade Redfield and Williams models, are useful and functionally practical as all-around hunting sights. Those named are superb performers, as variable scopes go.

When I use a variable-power hunting scope, I prefer that the magnification have a three-to-one ratio, as found in the 2X-6X and 3X-9X combinations, for best possible optical performance with the sight.

Most certainly, I do not—as some owners of variable-power hunting scopes do—use the instrument as a combination hunting sight and binocular substitute. Too often that suddenly-seen, unidentified movement in the brush can be another hunter. If, by chance, the subject realizes he is being glassed through a rifle's scope sight, he is sure to be decidedly uncomfortable! At best, such supplementary use of a scope sight mounted on a loaded rifle is dangerous action.

Use handy, lightweight binoculars for checking out movement. Use the scope sight *only* for aiming at a positively identified target.

A major optical fault of some of the early model variable-power hunting scopes was a corresponding change in the visual thickness of cross hairs with power (magnification) switches. However, this problem has since been licked. Modern models maintain the aiming reticle at constant size.

A different and faster way of changing from one magnification to another has also been worked out. Today, most variable-power hunting scopes are changed in power by simply twisting the eyepiece.

On most of the early models, power selection required removing a threaded protective turret, then using a coin or screwdriver to twist an uncovered knob. Or, in the case of some, like the Weaver KV of about 1955 vintage, you flipped a lever to make a power selection. In some of these early models, the pressure of the tightened dust cap against the power adjustment dial or lever kept the settings stable. Those who lost a threaded cap had difficulty maintaining a shot group location on a target.

The only way you can be certain a variable-power scope is truly holding at a given power adjustment is to fire at least five shots at each magnification, but without making any elevation or windage changes. Comparison of the shot groups formed will show whether increasing or decreasing magnification caused any serious shift of a shot group on the target.

The test firing after each power switch also tends to again stabilize springs and other components of the scope's optical system.

Heavy recoil can loosen screws. That's why anchoring holding screws with Loc-Tite on the threads is regularly recommended at initial installation. Periodically, check the tightness of external screws, especially those in the scope-holding rings and scope mount base. Many a hunting trophy has been lost because a scope user failed to take this precaution.

Sometimes, heavy recoil will damage a scope's internal parts. I've had it happen twice—once when using a scope-equipped .458 caliber bolt-action rifle and again during prolonged firing of a .30-06. In both instances, recoil rattled something in the scope's optical system, requiring manufacturer servicing.

But for the experienced hunter who knows he needs a scope sight power change under certain field conditions—and who does not mind a slight compromise in optical performance—a quality-made variable-power hunting scope will prove a practical and pleasurable investment.

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A SUMMARY OF FLORIDA firearms casualties for the calendar year 1971 has been compiled and released by the Game and Fresh Water Fish Commission.

Despite the state's growing resident population, and a corresponding increase in the number of licensed hunters afield, hunting accidents showed a marked decline from 1970 statistics. There were 10 less hunting accidents of record in 1971 than in 1970—42 compared to 1970's 52. Better still, fatal accidents while hunting dropped from the sad statistic of 21 in 1970 to 11 for the year 1971.

While the figures continue to reflect regrettable loss of life and carelessly-incurred injuries, the general picture is encouraging to those of us volunteer educators who continually strive to get across the importance and individual responsibility of safe hunting and firearms handling practices.

As a certified National Rifle Association instructor volunteer, I have spoken on radio, appeared on television, addressed civic clubs, and held clinics for sportsmen's groups on hunting safety during the past 27 years of residence in Florida—besides writing about firearms and hunting safety.

What is particularly encouraging to all dedicated educators is that Florida hunters generally are becoming safety and conservation conscious as never before. They now realize that every recorded adverse statistic hurts the future of the sport of hunting. Responsible hunters are speaking up against witnessed carelessness and disregard for game laws and landowner rights.

Without doubt, some beneficial changes have taken place, and others are in the offing.

SOME FLORIDA SPORTSMEN'S groups are advocating restricting firearms used for hunting in the Ocala National Forest to shotguns using buck shot or rifled slugs. I'm not sure the proposal truly complements Florida hunting safety.

Consider that practically all Florida big game hunting is short range shooting, and often amid thick forest growth.

Those who favor the rifle, or a shotgun using a rifled slug, usually fire only one or two shots at a target not far from the gun. Most likely, an intervening tree or thick brush soon stops the bullet or slug in case of a miss.

Contrast this with what happens when a load of buck shot is fired.

In a 12 gauge shotshell containing size No. 1 buck shot, a popular deer hunting load, there are 16 potentially lethal pellets, each .30-of-an-inch in diameter. They hit hard and they penetrate at average close Florida hunting ranges.

The heavy, velocity-retaining buck shot also spread out over a sizable pattern, and, invariably, some find openings between trees and thick brush.

In the long history of Florida deer hunting, many an innocent hunter has been accidentally killed or seriously injured by one or more buck shot from a load fired by another hunter, although escaping being hit by the main charge. The number of pellets per load, compared to a single bullet or rifled slug, ups the danger factor of buck shot considerably.

Unless a single buck shot penetrates a vital spot, it usually takes more than one pellet to put a deer down for keeps. Far more deer are wounded by buck shot and escape hunters to die later than get away after being struck by a hard-hitting, shock-imparting rifle bullet.

FLORIDA DEER HUNTERS who favor a combination of shotgun and buck shot for their hunting should keep in mind that the commercially-loaded shotshells known as "Short Magnums" maintain high firing pressure for a longer interval than do regular buck shot loads.

Short Magnums should be fired only in modern guns in good condition and, of course, kept out of old black powder shotguns altogether.

This warning is not to be confused with the standing admonition to keep smokeless powder loads out of old shotguns having Damascus barrels made from welded strips of twisted iron and steel. We are now referring to a smokeless powder load that can be a bit "hot" even for present-day shotguns if they chance to have loosely-breeching actions or weak anti-recoil springs.

Public service firearms and hunter safety courses are credited with helping reduce Florida's gun fatalities while hunting by 50 percent in 1971, over the figures for previous year—a good record, but not good enough.

Short Magnum loads will fire safely in any sound pump-action shotgun—like the long popular Ithaca Model 37, the old Winchester Model 12, and yesteryear's Remington Model 31, as well as the current crop of American-made pumps.

When fired in an autoloader, care should be taken to see that the gas port, or recoil friction collar and spring mechanism, is set for heavy loads.

The Short Magnum buck shot loads utilize a slower-burning powder than that used in ordinary buck shot shells. The result is a build-up of heavy chamber pressure and longer maintained peak pressure.

And usually, the Short Magnums contain a few more shot. In the Winchester standard buck shot load of 12 gauge, No. 1 buck, there are 16 pellets, each .30″ in diameter. Their Short Magnum version contains 20. The greater number of pellets is an advantage since it ups the numerical chance of hitting a deer.

LONG NEEDED has been a pistol rest for handgun test firing—one that the average shooter can afford to own and conveniently use. (Most commercial testers are both expensive and woefully heavy.)

A new pistol-testing rest made by Lee Custom Engineering meets this longstanding need and, equally commendable, carries a retail price the average serious pistol shooter can afford to pay.

Three mounting screws in a large cast iron base make it easy to mount the Lee pistol-testing rest on any solid shooting bench or sturdy frame.

Using a Lee rest, a pistol shooter can bench-rest test one particular handgun, or any number that share common grip dimensions. Adjustments are easily accomplished.

With the Lee handgun tester, you are not restricted to generally aligning handgun barrel and sights with a large target paper, but, through the use of provided elevation and windage adjustments made into the rest, undisturbed handgun sights can be aligned for any desired impact point on the target used.

Handgunners who use a scope sight will find the Lee pistol rest remarkably easy to use advantageously.

As already mentioned, the Lee rest comes with handgun holder designed to accomodate *one* gun model, or any group of handguns having similar grip dimensions. For example, a holder made for the Colt .38 Super can also be used for test firing unaltered .45 Automatic and 9mm Commander model handguns.

Additional interchangeable holders can be purchased for other handguns, where a shooter owns several models with different hand grip styles.

The Lee pistol-testing rest is such a new product that you may not always be able to immediately find one even in a store that sells reloading tools. But one can be ordered for you.

Best bet is to first write Lee Custom Engineering Company requesting literature and mentioning the handgun model or models to be rest-tested. The firm will give you exact technical information. Your local supplier can then furnish from stock, or order, the correct components

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IN THE JANUARY 1969 issue, I wrote about Sid Bell's excellent silver and gold game figure creations, for use as jewelry or for decorating a gun receiver, floor-plate, or stock.

There was an illustration of some of the miniature big game heads and game bird figures that Bell (of Tully, New York 13159) first casts in molten metal, then hand-finishes in finely-executed detail.

Since that column was published, I have seen quite a variety of Florida-owned rifles and shotguns dressed up with Bell's lifelike game figures. So many Florida shooters started asking for them that some of our larger sporting goods stores began stocking them. (Where not found locally, the handsome miniatures can be obtained from Bell by mail.)

In supplement to Bell's game figure decorations, readers have asked me to list some sources of supply for sterling silver shields that can be fitted to the underside of a gunstock near the toe, or used as fore-end inlays.

These small shields are available in two styles—slightly curved for fitting on the gunstock's underside, and flat for attaching to floor-plate or fore-end. Attachment is by a metal peg, or lug, on the back of the shield, with epoxy glue adding to their permanency. The shields can be plain or engraved with one's initials.

One source is Bob Hinman, 1217 W. Glen, Peoria, Illinois 61614. Others are Adam J. Cool, 728 Sanson Street, Philadelphia, Pa. 19106; and E. Averill, Route 1, 60 Chestnut Street, Cooperstown, New York 13326.

Prices are competitive. One of the size most often used costs only about $3.00 in sterling.

Be sure to specify flat or curved style when ordering.

Those who wish to add a sterling silver pistol grip cap to rifle or shotgun can order one from Pachmayr Gun Works, 1220 South Grand Avenue, Los Angeles, California 90015. The price is $6.00. They come in different sizes, so an outline drawing of your gun's present pistol grip cap should be sent with your order.

Reinhart Fajen, Warsaw, Missouri 65355, supplies nontarnishable nickel-silver engraved design grip caps for $5.00. One engraved with your last name or initials is $7.50. ●

CONSERVATION SCENE

Firearms Tax for Wildlife

CONSERVATION and wildlife restoration programs in the United States might be more successful, and their budgets much larger, if our sporting firearms industry were 10 times as large as it is today.

The reason for this relationship between conservation and the firearms industry is that, for every dollar spent on recreational firearms and ammunition in the United States, a percentage goes to wildlife. The source of these wildlife-directed funds is an 11 per cent excise tax on sporting arms and ammunition. Collected since 1937, the proceeds of this tax are earmarked for wildlife restoration under the Pittman-Robertson Federal Aid in Wildlife Restoration Act, and to date the pennies have added up to over $450 million for these programs.

Such yearly excise tax collections, which have increased steadily and sharply since 1937, topped $29 million in 1970. And in addition to this $29 million collected from the tax on rifles, shotguns and ammo, almost $7 million more was provided by a 10 per cent levy on handguns. Such taxes are unique in that they were sought by sportsman and manufacturer alike.

The funds, regulated by the U. S. Department of the Interior, are made available to the states for approved wildlife restoration projects and land purchases. The amount available to each state is determined through a complex formula based on such factors as the area of the state and the number of licensed hunters in that state. Large states with many hunters, such as California, Michigan, Texas and Pennsylvania, may receive more than $1 million each year. Distribution of the handgun tax money, however, is regulated so that no state shall receive more than 3 per cent of the total nor less than 1 per cent. The funds are used to repay up to 75 per cent of the cost of approved conservation programs, and the state pays the remaining 25 per cent.

The states have used these funds to improve game range by planting feed and cover, restocking game, constructing marshes and ponds for waterfowl, conducting research and purchasing millions of acres of wildlife lands. Part of the 10 per cent handgun tax money is also available for safety programs and range construction.

Most recently, Congressmen George A. Goodling, Pa., and John D. Dingell, Mich., have introduced in the House of Representatives a bill, H. R. 11091, to impose a similar excise tax on archery equipment with the proceeds to go for wildlife restoration programs, range construction and safety programs. If this tax is passed, the archery industry too will have conservationists praying for its prosperity.

MOVING?

If you are planning to move, please send notification four weeks before changing address. Send your address label from a current issue, plus your NEW address. This will ensure continued subscription service.

Industrial Recreation

SHOOTING IS ONE of the most popular forms of industrial recreation, according to a survey by the National Industrial Recreation Association.

The NIRA survey revealed that 52 percent of companies polled had organized rifle or pistol shooting programs and 42 per cent had trap or skeet shooting. In addition, 21 percent of the companies reported that they had their own facilities for rifle and pistol shooting.

Shooting was ranked in the top five recreations behind only golf, bowling, basketball and softball.

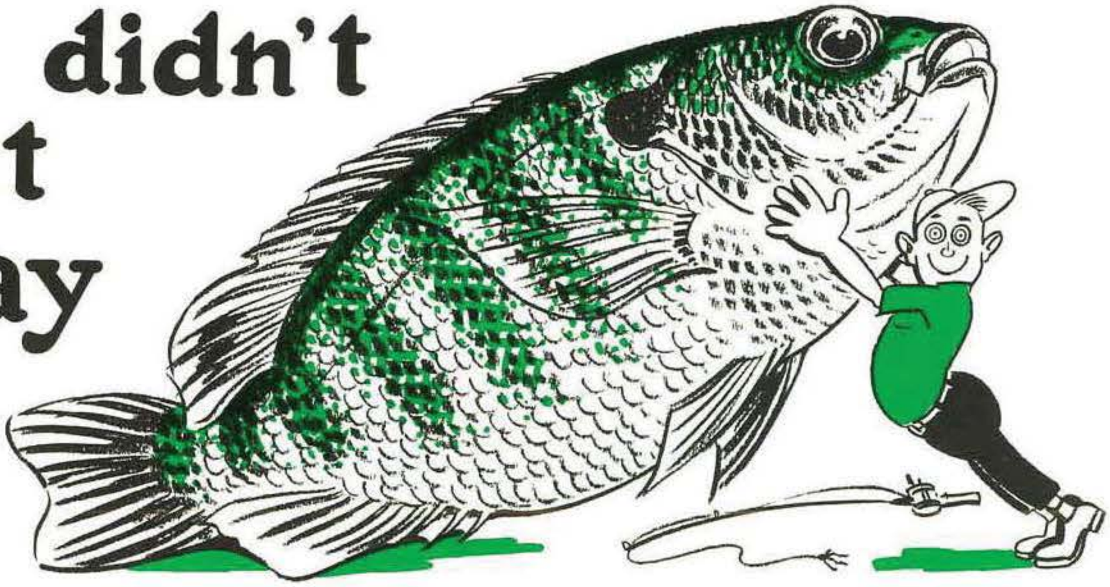
Patch and Booklets

IT'S NOT OFTEN that one gets a chance to stock a shooting library for the small investment of $1.00, but that's the deal being offered sportsmen by the National Shooting Sports Foundation; and that's only half of it.

For only $1.00, sportsmen can join the NSSF's "Outdoor Corps" and receive not only the six illustrated booklets on all phases of shooting but a colorful hunter orange shoulder patch as well. The patch itself, five inches high and shaped like a shotgun shell, is well worth the $1.00 investment without the six booklets on rifle, shotgun and handgun shooting, safety, hunting and conservation. Some 60,000 hunters and fishermen are already wearing the distinctive patch.

Sportsmen wishing to join the "Outdoor Corps" can obtain their patch and booklets by sending $1.00 to the National Shooting Sports Foundation, 1075 Post Road, Riverside, Conn. 06878.

For that BIG ONE that didn't get away



ELIGIBILITY REQUIREMENTS
SPECIES

LARGEMOUTH BASS	8 pounds or larger
CHAIN PICKEREL	4 pounds or larger
BLUEGILL (BREAM)	1½ pounds or larger
SHELLCRACKER	2 pounds or larger
BLACK CRAPPIE	2 pounds or larger
RED BREAST	1 pound or larger

All fish must be taken from the fresh waters of the state of Florida, as defined by the Game and Fresh Water Fish Commission. Fish must be caught on conventional fishing tackle, with artificial or live bait, in the presence of at least one witness.

The catch must be weighed and recorded at a fishing camp or tackle store within the state by the owner, manager, or an authorized agent of the respective establishment.

FLORIDA WILDLIFE'S
FISHING CITATION

is available without charge, to any and all subscribers to Florida Wildlife Magazine, and their immediate families, who catch any of the fresh-water game fish of the prescribed species and size requirements. Citation, showing recorded date of the catch, will be mailed to the applicant upon receipt of the following application form that has been properly filled out and signed.

Only fishing citation applications received within 90 days from date of catch will be honored.

APPLICATION FOR FLORIDA WILDLIFE FISHING CITATION

The Editor, FLORIDA WILDLIFE Date__________
Game & Fresh Water Fish Commission, Tallahassee, Fla.

Please send me the Florida Wildlife Fishing Citation with the inscribed data listed below:

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Address __________

City__________ State__________ Zip No.__________

Species__________ Weight__________ Length__________

Type of Tackle__________

Bait or Lure Used__________

Where Caught__________ in__________ County

Date Caught__________ Catch Witnessed By__________

Registered, Weighed By__________ At__________

Signature of Applicant__________

CUT OUT AND SAVE THIS APPLICATION BLANK

Young Black Bear

Photo By Leonard Lee Rue III

5-17-74 10 4-72
JOSEPH R. BRANDT
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LAKELAND,FLA.33801

FLORIDA WILDLIFE Magazine
Game & Fresh Water Fish Commission
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